red

EN

USE AND INSTALLATION MANUAL

COMPACT 24

COD.8901113100

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General information

The user is NOT permitted to service this boiler.

The manufacturer cannot be held liable for personal injury, harm to animals or property damage resulting from failure to observe the instructions contained in the manuals supplied with the boiler.

1. GENERAL INFORMATION

1.1. Symbols used in this manual

When reading this manual, pay particular attention to the parts marked with symbols. These symbols are used to give the following warnings:

DANGER!
Serious risk to safety and to life

CAUTION!
Potentially hazardous situation for the product and the environment

NOTE!
Recommendations for users

1.2. Proper appliance use

The instruction manual is an integral and essential part of the product and must be kept by the user or system manager.

Read the warnings contained in the manual carefully, since they provide important information about safe installation, use and maintenance.

Keep the manual in a safe place for future reference.

Installation and maintenance must be performed in compliance with the applicable regulations according to the manufacturer's instructions and by qualified personnel trained pursuant to the law.

Incorrect installation or improper maintenance could cause personal injuries, harm to animals or property damage, for which the manufacturer will not be held liable.

Before carrying out any cleaning or maintenance operations, disconnect the appliance from the mains power supply using the system switch and/ or the relevant external components and turn off all taps.

If the appliance has a fault and/or is not operating correctly, switch the appliance off and do not make any attempt to repair it or service it directly. Contact authorised personnel only. Any repairs to products must be carried out using only original spare parts. Failure to observe the above recommendations may compromise the safety of the appliance.

If the appliance is sold or transferred to a new owner or the owner moves, leaving the appliance in situ, always ensure that the manual is kept with the appliance so that it can be consulted by the new owner and/or installer.

For all appliances with optional equipment or kits (including electrical kits) use only original accessories.

This appliance must be used only for the use expressly intended. Any other use is to be considered incorrect and therefore dangerous.

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The COMPACT appliance has been built according to the latest technologies and in accordance with the applicable technical safety regulations.

Nonetheless, the incorrect use of the appliance may result in hazards and also endanger the user or others, or even damage the appliance or other objects.

The appliance is intended for the operation of hot water heating systems.

Appliance use in accordance with the envisaged purposes includes scrupulous observance of the instructions provided in this manual.

RED reserves the right to make any changes to the design and factory settings of the hot water boiler without having to inform the end users of such changes.

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2. GUARANTEE TERMS

The Manufacturer guarantees the product, with the exception of parts subject to normal wear specified below, for **two years** from the date of purchase, provided that proof of purchase is supplied in a document specifying the name of the retailer and the date the sale was made and that the completed guarantee certificate was sent within 8 days of said purchase. The product must also be installed and tested by a specialised installer and in accordance with the detailed instructions provided in the instruction manual that accompanies the product.

The guarantee covers the replacement or free repair of parts recognised as being faulty at source due to manufacturing defects.

2.1. Warnings

- Installation, electrical connection, functional check and maintenance of this appliance must only be performed by qualified or authorised personnel.
- This appliance must not be used by anyone (including children) with reduced physical, sensory or mental skills and with little experience and knowledge, unless they are supervised or have been instructed to use the appliance by the person in charge of its safety.

The guarantee applies, provided that:

1. The boiler is installed, in accordance with the applicable standards in force and the instructions provided in the product use, maintenance and installation manual, by legally qualified personnel (Italian Ministerial Decree no. 37 of 22nd January 2008);
2. The customer holds the documentation certifying its suitability in all parts:
    a. INSTALLATION REPORT - filled in by the installer
    b. TEST REPORT and GUARANTEE APPLICATION - filled in by an authorised serviceman
3. The guarantee applies from the date of first start-up of the boiler, which must be indicated on the boiler manual or from the invoice date. This documentation must be presented to the authorised service centre in the event of servicing.

2.2. Exclusions

The guarantee does not cover any parts found to be faulty due to negligence or inappropriate use, incorrect maintenance, or installation not performed in compliance with the manufacturer's instructions. The manufacturer will not be held liable for any damage which may - either directly or indirectly - be caused to persons, animals or property resulting from failure to observe all the instructions provided in this manual and, specifically, concerning the warnings regarding installation, use and maintenance of the appliance.

The guarantee is not valid if:

1. The terms for the guarantee application were not observed.
2. Installation was not performed in observance of the applicable standards in force and the instructions provided in the use, maintenance and installation manual.

The guarantee does not cover:

1. Damage made by atmospheric agents, chemicals, electrochemical elements, incorrect product use, natural disasters, electrical discharges, fires, faults in the electrical system, modifications to or tampering with the product, and/or other causes not ensuing from the product manufacturing
2. Damage caused by normal corrosion
3. Damage relating to the combustion chamber
4. Damage to seals, claddings, painted/chromed parts, handles and electrical wires
5. Damage to masonry work
6. Damage to parts of the system for the production of DHW not supplied by RED
7. Damage to the heat exchanger if a suitable condensation-proof circuit is not set up to guarantee a minimum boiler return temperature of at least 55 °C.

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8. Servicing for calibration or product adjustments
9. Incorrect or negligent use.
10. All damage caused by transport; we consequently advise you to check the goods carefully upon receipt, notifying your retailer immediately of any damage, making a note on the delivery note and on the copy that travels with the carrier.

Please contact your retailer and/ or local importer in the event of product failure.

RED will not be held liable for any damage which may - either directly or indirectly - be caused to property, or personal injury or harm to animals ensuing from failure to observe all the instructions provided herein and the applicable regulations regarding installation, use and maintenance of the appliance.

The parts replaced will be guaranteed for the remaining guarantee cover period starting from the original date of purchase of the product.

2.3. Additional clauses

If faulty or malfunctioning parts are detected during normal product use, these will be replaced free of charge ex retailer who made the sale or ex our local technical service centre.

For products sold abroad, the same circumstances will again result in free replacement, ex our retailer, with the exception of special conditions agreed with the foreign distributor at the time of negotiations.

In the case of replaced parts, the guarantee will not be extended.

No damages are awarded for the product downtime period.

This is the only applicable guarantee and no-one is authorised to provide any other guarantees in the name of or on behalf of RED.

2.4. Liability

RED will not pay any compensation for direct or indirect damage caused by or dependent upon the product.

2.5. Court with jurisdiction

In the event of any controversy, the court with jurisdiction is the Court of Pordenone (Italy).

2.6. Liability exclusion

The manufacturer is not able to supervise the observance of the instructions provided in this manual. Nor is it able to monitor the conditions and methods of installation, operation, use and maintenance of the product. Incorrect installation could cause damage and endanger persons. Consequently, we cannot be held in any way liable for losses, damage or costs ensuing from incorrect installation, improper functioning and incorrect use and maintenance or in any way connected to the latter. Similarly, we will not be held in any way liable for any violations of patents or third party rights ascribable to the use of this product.

The manufacturer reserves the right to make any changes to the product, technical specifications or to the manual without notice.

If hazard-free operation is no longer possible (for instance, due to visible damage), turn off the appliance immediately.

2.7. Service call

The service call must be made to the retailer or service centre.

The manufacturer cannot be held liable if the product and any of its accessories are used incorrectly or modified without authorisation.

Only original spare parts must be used for replacements.

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2.8. Installation standards

The Compact boiler is designed to run on wood pellets.
It must be installed according to the provisions of the following standards:

Italian Law Decree no. 93 of 25th February 2000
Implementation of Directive 97/23/EC (P.E.D.) on the subject of pressure equipment.
SCOPE OF APPLICATION: liquid fuel (naphtha, gas oil, fuel oil) and solid fuel operated appliances.

ITALIAN LAW of 5th March 1990 no. 46 and related applicative regulations Italian Ministerial Decree no. 447 of 6th December 1991 (and subsequent amendments) and **Italian Ministerial Decree no. 37 of 22nd January 2008**
System safety standards
SCOPE OF APPLICATION: without limits to heat potential.

Standard UNI 10847 of 03/2000
Single flue systems for liquid and solid fuel generators. Maintenance and control. Guidelines and procedures.
SCOPE OF APPLICATION: liquid and solid fuel operated systems.

ITALIAN LAW of 9th January 1991 No. 10 and related applicative regulations Italian Ministerial Decree no. 412 of 26th August 1993 (and subsequent amendments), Italian Ministerial Decree no. 551 of 21st December 1999.
Regulations specifying amendments to Italian Presidential Decree 412 on the subject of planning, installing, running and servicing heating systems in buildings for the purposes of limiting energy consumption.
SCOPE OF APPLICATION: without limits to heat potential.

ITALIAN LAW NO. 186 of 01.03.1968
Installation standard CEI 64-8 / II ed.
Electrical utility systems at a nominal voltage of no more than 1000 V in alternating current and 1500 V in direct current.

Installation standard CEI 64-8 / I ed.
Electrical utility systems in buildings intended for residential and similar purposes.

Standard UNI 10683 of 09/2005
Systems running on wood or other solid biofuels.
Installation requirements
SCOPE OF APPLICATION: systems running on wood or other solid biofuels with a heat decomposition power of the combustion chamber below 35 kW.

The installation procedure requires the scheme for the heating system, prepared in accordance with the standards and local recommendations in force, as follows:

- For the heating system - **EN 303-5/2000** - "*Boilers for heating. Part 5: Heating boilers for solid fuels, hand and automatically stocked, nominal heat output of up to 300 kW. Terms, requirements, tests and marking*".
- Local requirements for the flue connection.
- Local requirements for fire-prevention standards.
- For the power circuit - **EN 60335-1/1997**- "*Safety of electrical appliances for domestic and similar use, Part 1 – General requirements*".

This appliance must be installed in accordance with the provisions of the applicable standards in force in the country of installation of the boiler.

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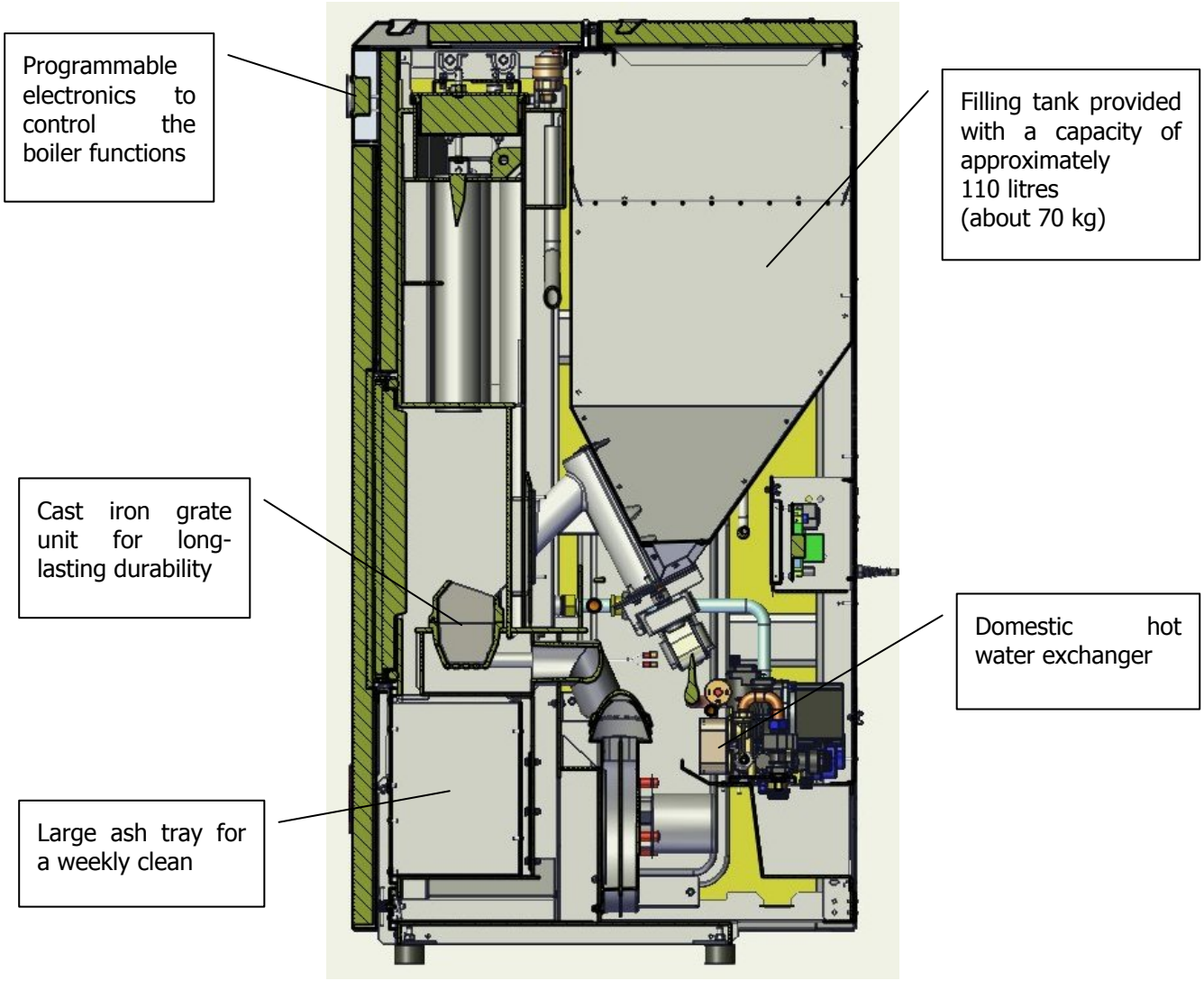
3. TECHNICAL SPECIFICATIONS AND DIMENSIONS

3.1. Technical specifications

The hot water pellet boilers in the "COMPACT 24" range are pellet boilers for the production of hot water with a steel structure, which use solid biomasses in the form of pellets as fuel. The boiler is designed for connection to heating systems and to the Domestic Hot Water system.

3.2. Compact 24 hot water boiler description

The "COMPACT 24" hot water pellet boiler heat exchanger complies with the operating requirements of this type of appliance, as set out in the operation standard: ***EN 303-5/2000 –***


Programmable electronics to control the boiler functions
Filling tank provided with a capacity of approximately 110 litres (about 70 kg)
Cast iron grate unit for long-lasting durability
Domestic hot water exchanger
Large ash tray for a weekly clean

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3.3. System technical details

The heat and technical details of the pellet boiler system using wood pellets:

Parameter	Measurement unit	Compact 24
Nominal heat output	kW	22.7
Nominal heat output in combustion chamber	kW	25.4
Operating range (min – max)	kW	6.3 – 22.7
Efficiency (min – max)	%	85.4 – 89.2
Average consumption rate (min – max)	kg/h	1.5 – 5.2
Class compliant with EN303-5		3
Smoke flow rate (min – max)	g/s	8.4 – 17.1
Draught (min – max)	Pa	8.5 – 13.3
Smoke temperature	°C	112
Boiler water capacity	l	25
DHW flow rate	l/min	10.5
Maximum operating temperature	bar	3
Max adjustable water temp.	°C	85
Pellet tank capacity	kg	70
Running time with average load	h	25
Diameter of flue pipe	mm	100
Heating connections	G	¾" male
Domestic Hot Water connections	G	½" male
Electricity supply		50 Hz; 230V AC
Power absorption (max – average)	kW	420 - 100
Dimensions (WxDxH)	mm	600x660x1235
Boiler weight	kg	190

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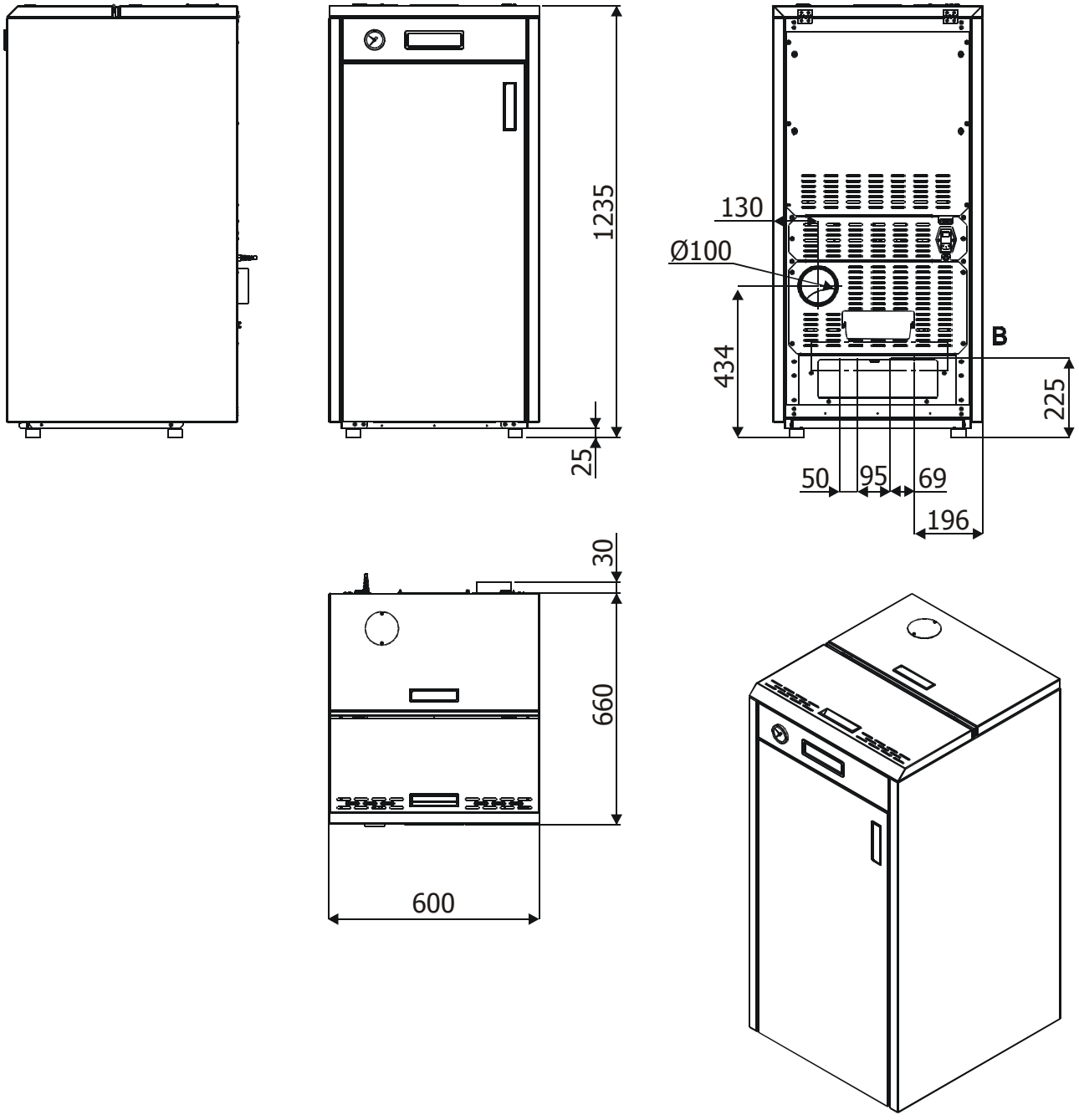
The following figures show the dimensions and structure of the system modules:



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3.4. General information

The main characteristic of the boiler is that it burns a natural fuel (pellets) obtained ecologically from wood industry waste (sawdust, chips). The sawdust and chips obtained from wood machining are first suitably cleaned and dried, and then compacted at very high pressure to produce small nuggets of pure wood, i.e. pellets.

It is an absolutely ecological fuel since it does not use any glue to keep it compact. Indeed, the compact nature of pellets over time is ensured by a natural substance found in wood: jet (or lignite).

Each pellet can vary in length and thickness, between 1÷3 cm in length and 6÷8 mm in diameter respectively. The main characteristics of pellets are their low humidity (below 12%). Their high density (approx. 600 kg/m^3) and regular compact texture give this type of fuel properties of high heating value (LHV 4100÷5000 kcal/kg).

In order to prolong the life cycle of the boiler, RED recommends the use of good quality pellets.

The pellets to be used to power the boiler must have high quality characteristics, such as those set out in standards DIN 51731 and ÖNORM M7135.

It is vital that you check regularly that there are some pellets left inside the tank to avoid them running out completely and therefore the boiler shutting off.

WARNINGS

The use of poor quality pellets or of any other inappropriate material could damage certain components of the boiler and jeopardised its correct functioning: this could render the guarantee null and void, and relieve the manufacturer of any liability. RED encourages users to use pellets which comply with the characteristics set out herein above.

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4. INSTALLING A "COMPACT" HOT WATER BOILER

4.1. General warnings

- This boiler must only be used for the use expressly intended. Any other use is to be considered incorrect and therefore dangerous.
- This boiler is designed to heat water
- These appliances are designed solely for installations in suitable rooms or technical premises. Consequently, these appliances cannot be installed and operated outdoors. Outdoor installation could lead to malfunctions and hazards. For outdoor installations, we advise you to choose an appliance designed specifically for this purpose.
- The boiler must NOT be used by children or unassisted persons with limited abilities.
- Do NOT leave any packaging components within the reach of children or persons with limited physical, sensory or mental skills or with little experience and knowledge.
- Do NOT touch the boiler bare foot and with wet or damp body parts
- The venting apertures are vital for correct combustion
- After a prolonged period of inactivity, check for any obstructions before starting the boiler.
- Do NOT block or reduce the size of the venting apertures of the room where the boiler is installed
- Do NOT pull, detach or tamper with the electrical wires protruding from the boiler, even when the latter is cut off from the electricity mains.
- Caution: some parts of the boiler can get very hot; you are therefore advised to wear suitable heat protection.
- Do NOT modify the safety or regulating devices without the manufacturer's authorisation.
- The door to the combustion chamber MUST remain shut during normal product operation
- The boiler was designed to operate in any weather, yet in the case of adverse weather (strong wind, ice), the safety systems may be triggered and shut off the boiler. If this is the case, contact the service centre and do not override the safety devices.
- In the event of fire in the flue pipe, call the fire brigade.
- If the boiler shuts down, for reasons other than routine maintenance, call the service centre.
- Before making the boiler connections, have professionally qualified staff perform the following:
  a) Clean thoroughly all system piping to remove any residue or impurities which could compromise the correct functioning of the boiler
  b) Check that the chimney flue/flue pipe has a suitable draft, is free of any kinks, and that no outlets from other appliances are introduced there.
- The appliance must be installed by a qualified fitter with the required technical and professional qualifications pursuant to Italian Law 46/90 and to Italian Ministerial Decree no. 37 of 22nd January 2008 who, under his own responsibility, shall guarantee compliance with the regulations of good practice.
- The boiler must be connected to a heating system and/or to a domestic hot water production network, compatibly with its performance and power.

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4.2. Packaging

The boiler is delivered complete with all electrical and mechanical components and it is factory tested.

Open the package, remove the three screws from the front bracket and the other three from the rear bracket; these brackets secure the boiler to the pallet (fig.1).

The materials making up the packaging are neither toxic nor harmful, and so require no particular disposal measures.

Storage, disposal or any recycling is therefore under the responsibility of the end user in compliance with the applicable laws in force.

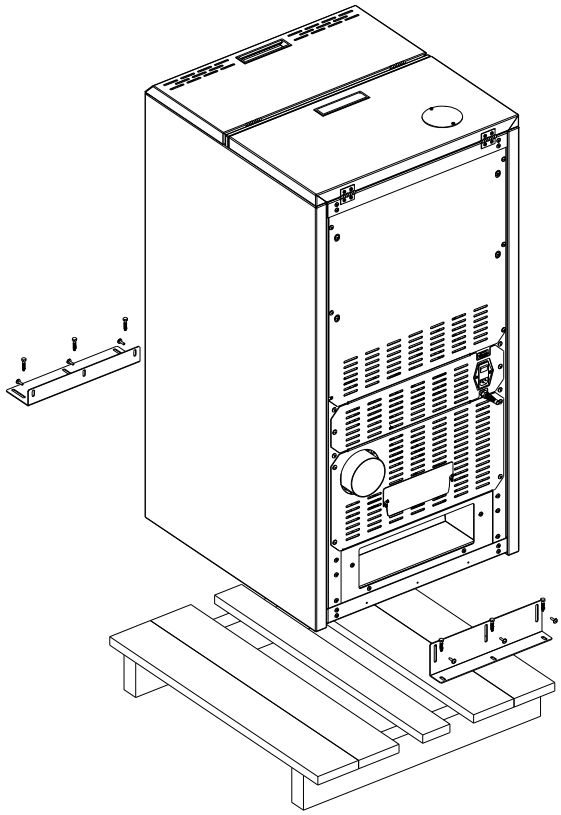

Figure 1 - Removing the packaging screws

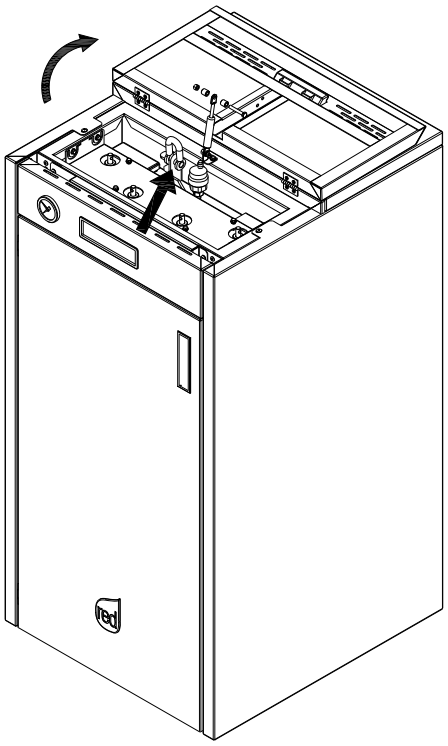

Figure 2 – Handling hook

The boiler must always be handled vertically, using manual or mechanical cranes, which can lift the pallet on which it is packaged or the boiler itself directly. The boiler - as illustrated in figure 2 - comes with a hook to make all handling easier.

Take special care not to damage electrical or mechanical parts, with shocks or water sprays once the protective packaging has been removed.

- After removing the packaging, make sure the boiler is complete and undamaged
- If in doubt, contact the retailer
- The document envelope contains:
  - System manual
  - An instruction manual for installation, use and maintenance
  - Appendix G - Technical inspection report for heating system with an output of less than 35 kW
  - Guarantee

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4.3. Boiler room

Make sure the room complies with the requirements and characteristics set out in the applicable regulations in force. It is also necessary for the room to provide at least as much air as is required for regular combustion. It is therefore necessary to make holes in the walls of the room, which comply with the following requirements:

- Have a free cross-section of at least 6 cm^2 for every 1 kW (859.64 kcal/h). Nevertheless, the minimum cross-section of the opening must never be less than 100 $cm^{2.}$ The cross-section can also be calculated using the following ratios:

  $S = K * Q \geq 100\ cm^2$

  Where "S" is expressed in cm^2, "Q" in kW, "K" = 6 cm^2/kW
- The opening must be situated at the bottom of an external wall, preferably opposite the one where the combustion gases are vented.

4.4. Connection to the flue pipe

For the connection of the flue outlet pipe, local and national regulations must be observed (see Standards UNI 7129 and UNI 10683).

A flue pipe must comply with the following requirements:

- It must be made of waterproof material resistant to the temperature of the smoke and related condensation.
- It must ensure sufficient mechanical resistance and weak heat conductivity.
- It must be perfectly sealed, to avoid the cooling of the flue pipe itself.
- It must be arranged as vertically as possible.
- Chimneys both old and new, built without observing the above specifications, may be conveniently recovered by "intubating" the chimney itself. This means a metal flue shall be inserted inside the existing chimney and the space between the metal flue and the chimney shall be filled with suitable insulation.
- In order to prevent the wind from creating pressure areas around the chimney that prevail over the rising force of the combustion gases, the outlet aperture must be positioned at least 0.5 metres above any structure adjacent to the chimney itself (including the ridge of the roof) at least 8 metres away.
- The flue pipe must have a diameter of no less than the boiler union; for flue pipes with a square or rectangular cross-section, the internal cross-section must be increased by 10% compared to the boiler union.
- The useful cross-section of the flue pipe can be calculated using the following formula:

  $S = K \times P/\sqrt{H}$

  S ensuing section in cm^2

  K reduction coefficient: 0.045 for wood

  P boiler output in kcal/h

  H height of the chimney in metres, measured from the flame axis to the outlet of the chimney into the atmosphere. When sizing the flue pipe, please take into account the actual height of the chimney in metres, measured from the flame axis t the top, decreased by:
- 0.50 m for every change in direction of the union duct between the boiler and the flue pipe
- 1.00 m for every metre of horizontal development of the union itself.

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- **We recommend the sole use of outlet ducts which are suitable for the type of fuel used. The supplier will not be held in any contractual and non-contractual way liable for damage caused by installation and usage errors and in any case due to failure to observe the instructions provided by the manufacturer of the appliance.**
- **The products of combustion of the boiler cannot be discharged in collective flue ducts.**
- **The correct installation of the flue duct is necessary to encourage the normal flow of smoke from the combustion chamber to the outside in the event of an electrical power failure.**
- **Remember that a draught of 10 Pa must be guaranteed.**

Below are the main characteristic traits of the flue duct according to the provisions of standards UNI 7129 and UNI 10683:

- The smoke outlet must be equipped with inspection valves;
- The minimum height of the pipe directly connected to the smoke outlet of the boiler must be between 2-3 m;
- If the presence of a horizontal section is necessary, we recommend that the same is of a maximum length of 1.5 m and with a slope gradient of 3-5% to encourage the smoke to flow away;
- **Use of a wind-proof and rain-proof terminal** to avoid changing the slight overpressure inside the flue pipe (we recommend you end the flue pipe with a horizontal section);
- The outlet ducting must be made with suitable materials which can withstand the products of combustion and any condensation of the same (the inspection valve can allow any condensation that has formed to be vented);
- The ducts must be built to ensure maximum seal against smoke (UNI 10683);
- We recommend you insulate the duct, especially on the outside part exposed to the weather.

Avoid installing completely horizontal sections.

The room where the heat generator is to be installed must not contain any existing or envisaged smoke suction hoods in order to avoid depressurising the setting.

The air intakes must not be closed.

Make sure the flue pipe is kept clean, cleaning it at least once a year.

In the event of a fire in the flue pipe or duct, switch the boiler off immediately and disconnect it from the domestic electricity mains

4.4.1. *Roof outlet along an external steel flue pipe*

One of the installation solutions which could be used is to position the boiler near a perimeter wall of the home (see figure below) so that the smoke is discharged along an external flue pipe. Here are some of the provisions of standard UNI 7129 for this particular system configuration:

- Always make sure there is an inspection valve to allow periodic and efficient cleaning, as well as the venting of any condensation that may have formed;

- The chimney must under all circumstances be wind-proof and rain-proof;

- Make sure the smoke outlet duct is suitably insulated in the section that crosses the wall.

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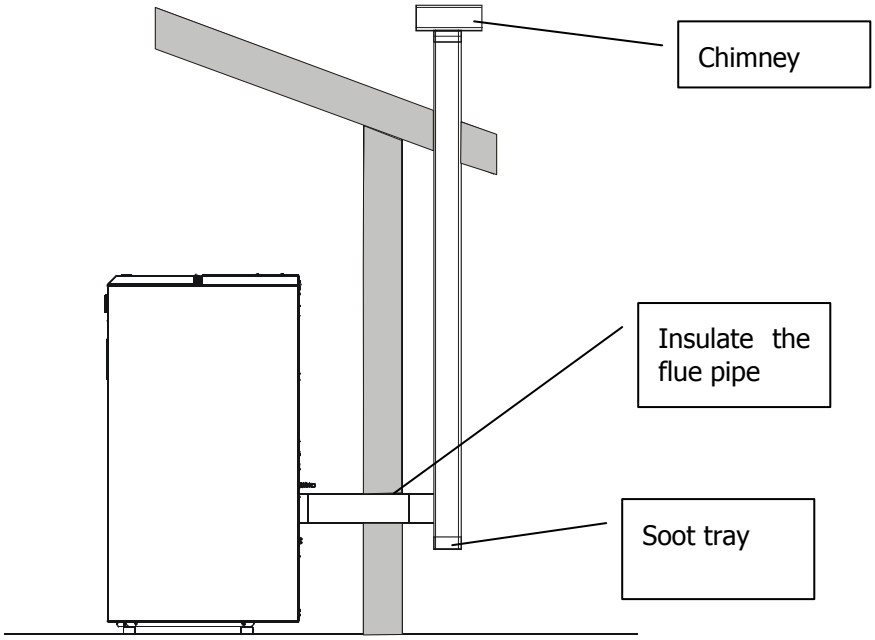


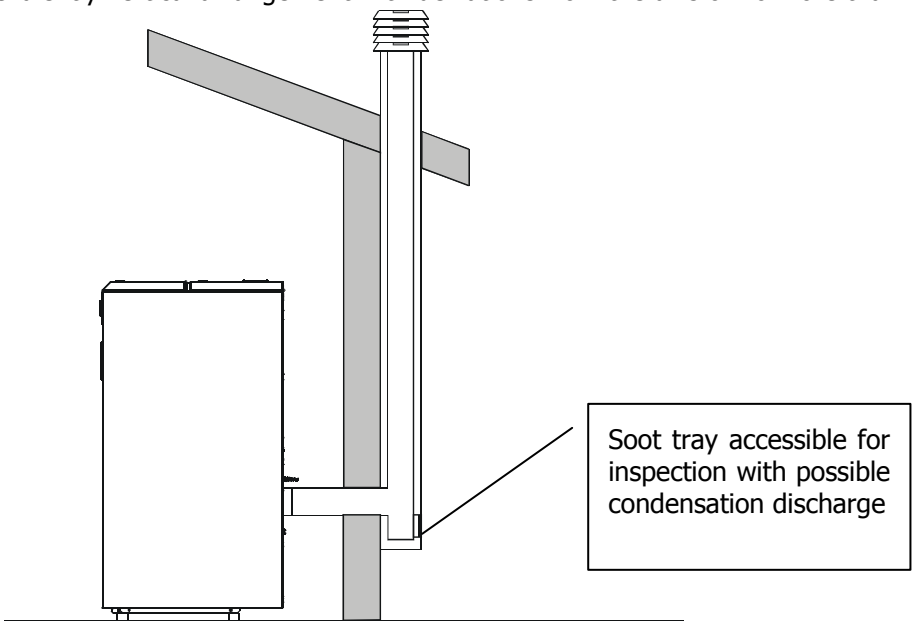
It is advisable for the smoke outlet duct, if it is completely outside, to be made of double-wall stainless steel to guarantee both greater resistance to the atmospheric agents as well as the appropriate temperature of the smoke outlet.

4.4.2. *Roof outlet along a traditional flue pipe*

The flue smoke can also be discharged using an existing traditional flue pipe provided it is compliant to standards (see UNI 10683).

Here is a brief list of the main characteristics highlighted in the standard that distinguish a good chimney:

- Suitable insulation and lagging especially in the external section exposed to the atmosphere;
- Constant internal cross-section (there must not be any narrower sections);
- Made with material resistant to high temperatures, to the action of the products of combustion and to the corrosive action of any condensation that may form;
- Prevalently vertical arrangement with deviations from the axis of no more than 45°;



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It is compulsory to plan a chamber for the collection of solid material and/or any condensation, which can be inspected through an airtight door.

It is compulsory for you to observe the provisions of standards UNI 9615 and 9731 for the sizing of the chimney cross-section and in any case that you avoid installing ducts with a cross-section of less than 150 mm.

In the case of larger cross-sections, it may be necessary to insert a steel duct inside the masonry one.

Direct wall discharge is not permitted.

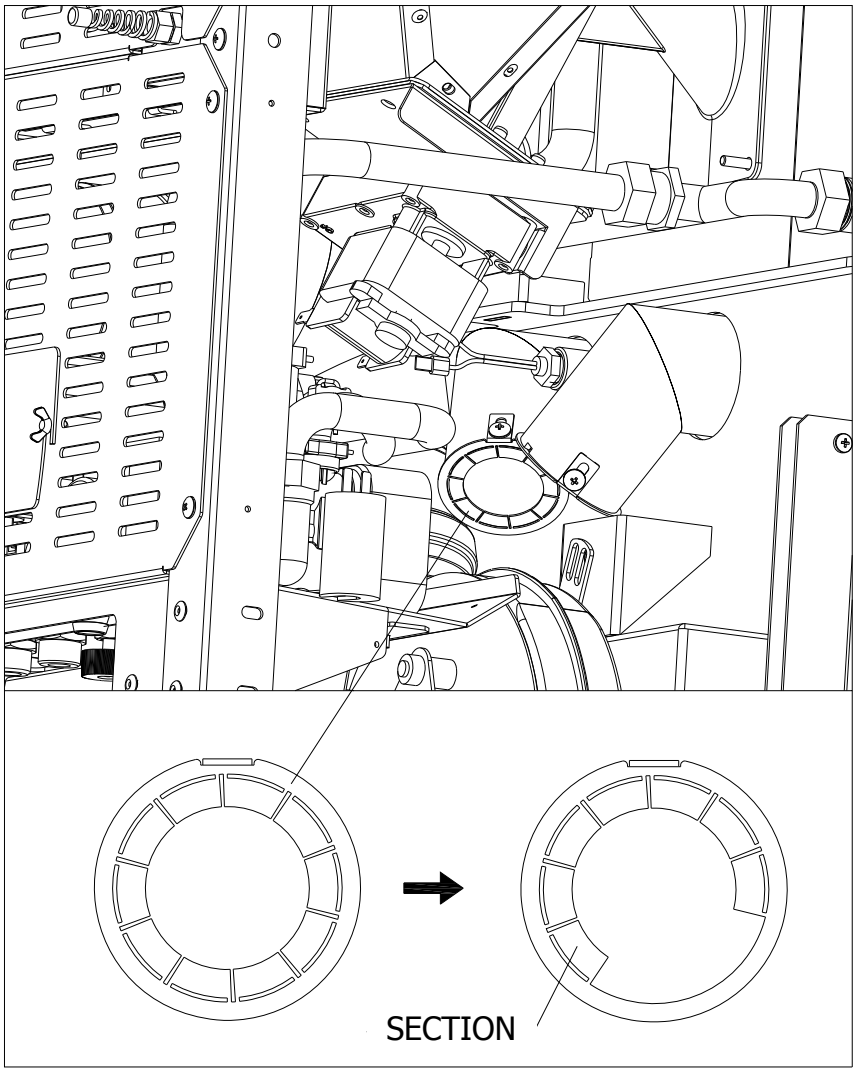
The steel pipe must be suitably insulated with material which is resistant to high temperatures and sealed off from the external chimney.

4.5. Baffles

In certain installation conditions there might be an acoustic resonance due to the pressure differential in the fluid dynamics between combustion air inlet and exhaust fumes outlet.

To solve the problem removable baffle sections are fitted in each air inlets of the Compact 24.

After the first ignition if a background noise becomes audible 1 or 2 baffle sections must be removed, or more until the resonance ceases.



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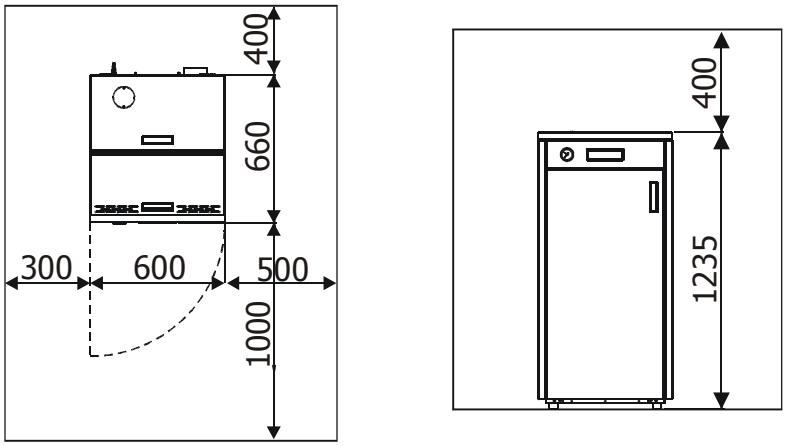
5. SYSTEM INSTALLATION PROCEDURE

5.1. Requirements for installing the system

- **the minimum clearance in front of the boiler** to allow it to be cleaned, serviced, etc. must be **1000 mm**;
- the minimum clearance permitted between the rear of the boiler and a wall must be **400 mm**;
- the minimum clearance between the top of the boiler and a wall (ceiling) must be **400 mm** to ensure easy access for cleaning and servicing the heat exchanger (to remove the ash, for instance);
- the minimum distance between the boiler and the wall must be **300 mm.**



Air inlets linked to the outside must be arranged and, in compliance with the provisions of Standard UNI 10683, these must have the following characteristics:

1. Have a free cross-section of no less **than 100 cm^2**;
2. Be provided as close to floor-level as possible;
3. Be suitably protected by a wire mesh or grate so that the free cross-section for air passage is not reduced;
4. Be positioned in such a way as not to be obstructed in any way.

The correct supply of air can be guaranteed through apertures into an adjoining room, provided that direct ventilation is provided and that such a room is not a fire hazard, such as store rooms, garages or warehouses, in accordance with the regulations set out in Standard UNI 10683.

It is advisable to install the boiler in premises which do not contain appliances that do not operate in a room-sealed manner or appliances that could depressurise the room itself compared to the outside and thereby cause problems relating to poor draft for the smoke evacuation system (UNI 10683).

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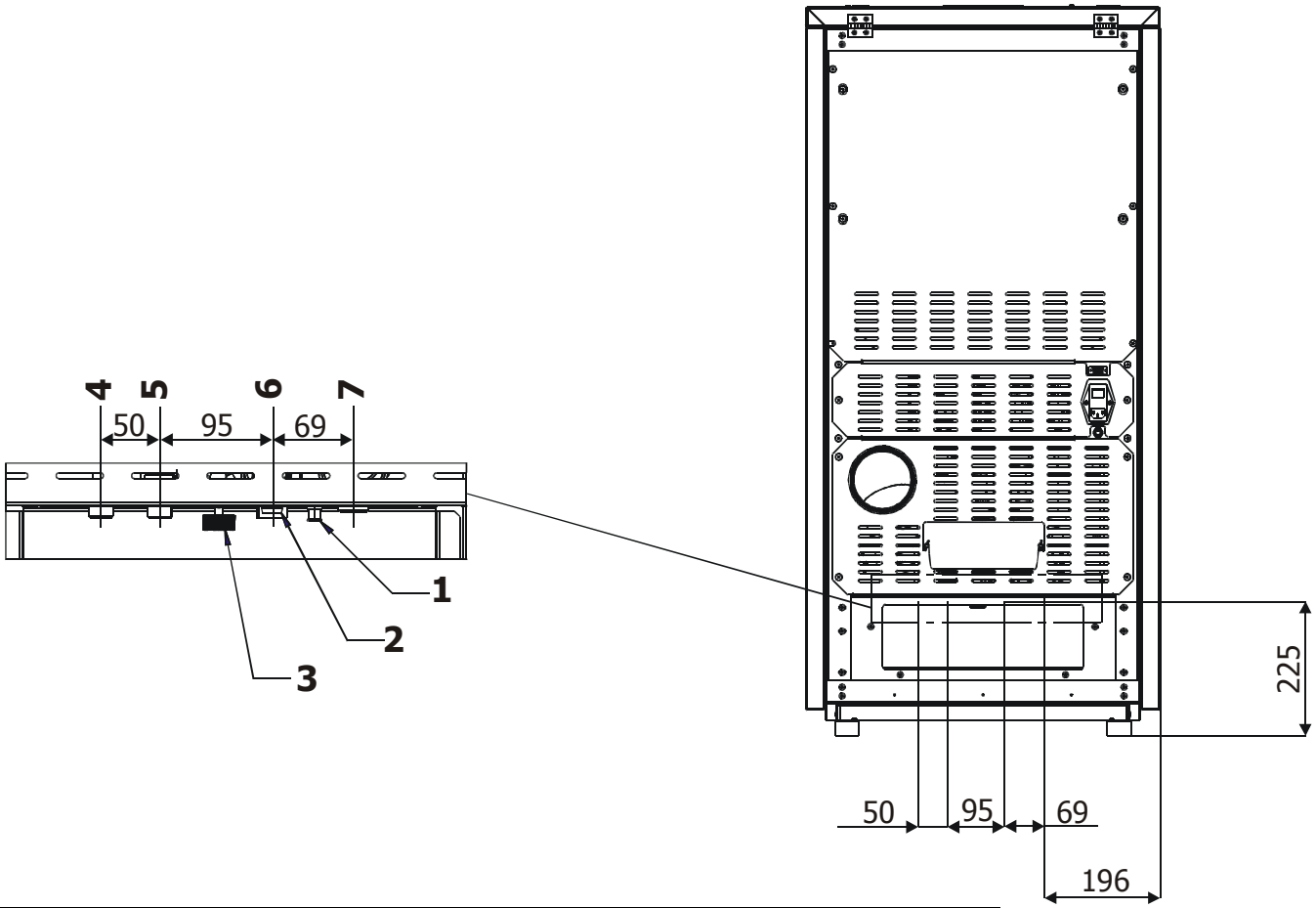
6. HYDRAULIC AND ELECTRICAL CONNECTIONS

6.1. Hydraulic connection

IMPORTANT!

If the boiler installation envisages interaction with another existing system complete with another heating appliance (gas boiler, methane boiler, diesel boiler, etc.…), ask for qualified personnel for assistance to ensure the system is compliant with the applicable laws in force.

The manufacturer will not be held liable for property damage or personal injury or in the event of failed or incorrect functioning, if the above warnings are not adhered to.



1	EXHAUST	5	DOMESTIC WATER INLET 1/2"G MALE
2	SAFETY VALVE	6	HEATING RETURN 3/4"G MALE
3	FILLING	7	HEATING FLOW 3/4"G MALE
4	DOMESTIC WATER OUTLET 1/2"G MALE		

Make the connections to the corresponding unions illustrated in the above diagram, avoiding any tension and undersizing of pipes.

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IMPORTANT!!!

WASH THE ENTIRE SYSTEM BEFORE CONNECTING THE BOILER IN ORDER TO REMOVE ALL RESIDUE AND DEPOSITS.

Always install cut-off gate valves upstream of the boiler in order to isolate it from the hydraulic system should it be necessary to move it to perform routine and/or unscheduled maintenance.

Connect the boiler using flexible pipes so as not to bind the boiler excessively to the system and allow minor movements.

6.1.1. *hydraulic kit*

The boiler comes with a complete kit for the production of domestic hot water, consisting of:

- A plate heat exchanger
- A three-way diverter valve
- Water flow meter
- Pipes and unions for connection

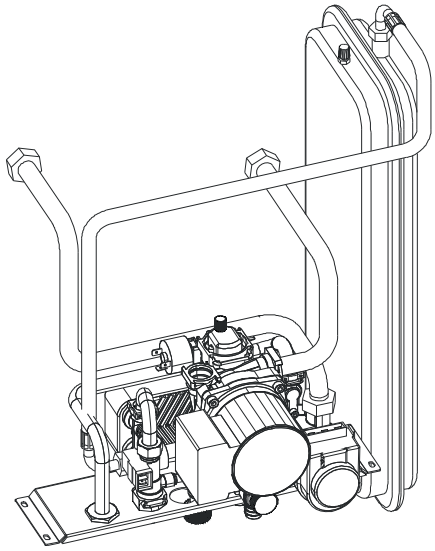
The kit is designed to heat domestic water directly from the home water supply system. RED supplies the kit ready-assembled.
When the tap is turned on and hot water is needed, the internal water flow meter will send a signal to the diverter valve to channel the hot water from the boiler (where it is stored) to the plate heat exchanger. The temperature of the domestic water depends a great deal on the temperature of the water inside the heating system. This can be calculated to a good degree of accuracy by taking 10°-15 °C away from the value shown on the control panel of the boiler (which is the temperature of the water in the boiler).

If hot domestic water is needed while the boiler is in ECO-STOP mode, 30 seconds after the request, the boiler will automatically and immediately begin the start-up process to heat the water inside the boiler, and then the domestic hot water.

To ensure that the plate heat exchanger continues to operate correctly over time, it is important that you know the water hardness of your system to prevent deposits from forming.

If the water in your home is very hard, you are advised to install a softening system upstream.

You are advised to maintain the plate heat exchanger annually to eliminate calcium sediments and mineral salts or to replace heating plates with new ones. RED supplies these replacement parts.



1	PUMP
2	PRESSURE GAUGE CONNECTION
3	EXPANSION VESSEL CONNECTION
4	FILLING TAP
5	PRESSURE SWITCH
6	SAFETY VALVE
7	BY-PASS VALVE
8	DRAIN-OFF TAP
9	FLOW METER
10	THREE-WAY VALVE
11	EXCHANGER

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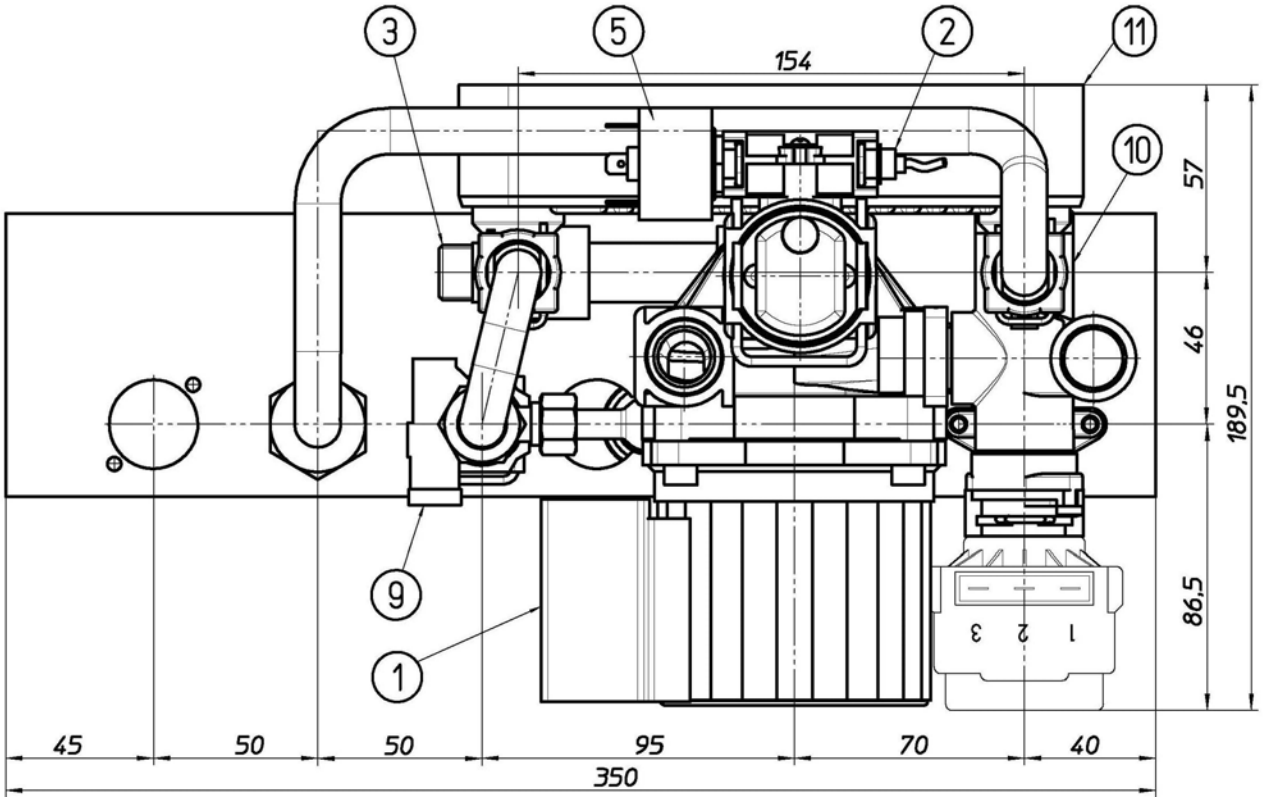

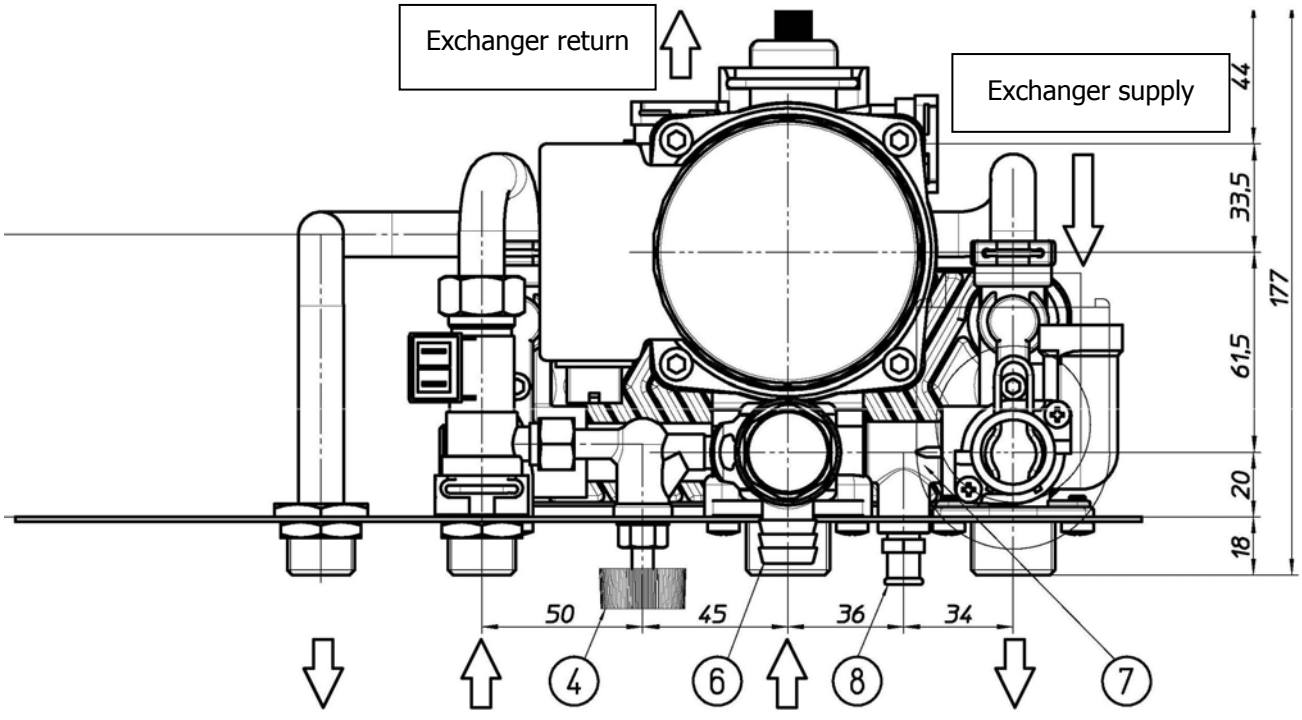

Domestic outlet	Domestic inlet	Heating return	Heating supply

The safety valve (6) must always be connected to a drain pipe. The pipe must be designed to withstand the high temperature and pressure of the water.

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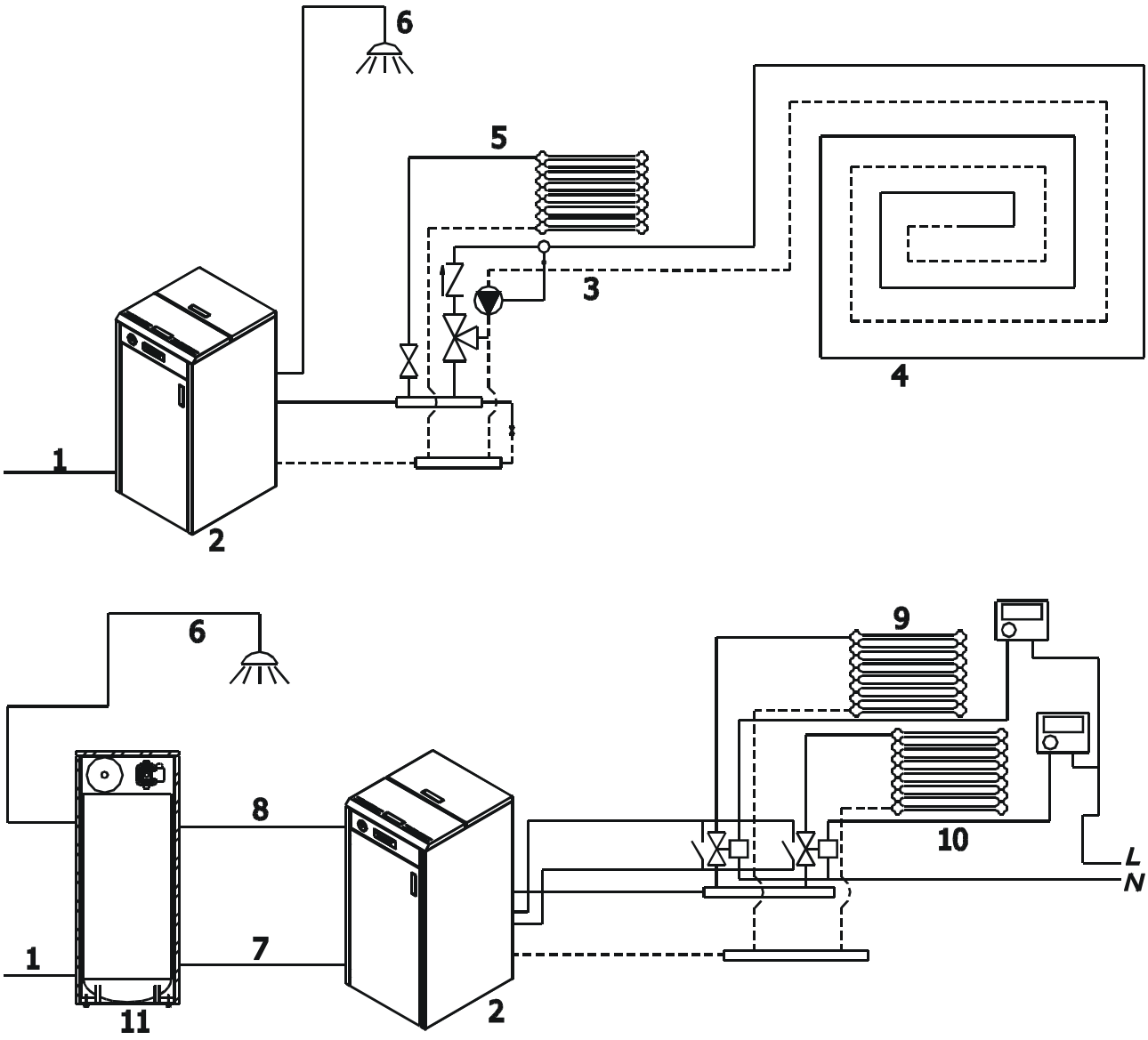
6.1.2. *Hydraulic diagram*



1	DOMESTIC COLD WATER (DCW)
2	COMPACT 24
3	SAFETY THERMOSTAT
4	MIXED LOW TEMPERATURE CIRCUIT
5	DIRECT HIGH TEMPERATURE CIRCUIT
6	DOMESTIC HOT WATER (DHW)
7	BOILER DCW CONNECTION
8	BOILER DHW CONNECTION
9	FLOOR 1
10	FLOOR 2
11	110 DHW STORAGE TANK

CAUTION: ***the system installation and the running of the tests must be specified in the relevant pellet boiler documents, filling in the boxes with the related data (compulsory).***

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6.2. Cleaning the system

It is compulsory for the connections to be easy to disconnect by means of swivel pipe unions. Fit suitable cut-off gate valves on the heating system piping.

To prevent hazardous corrosion of the heating system and the formation of scaling and deposits, it is of the utmost importance to wash the system before installing the appliance, in accordance with standard UNI-CTI 8065, using appropriate products such as Sentinel X300 (new systems), X400 and X800 (old systems) or Fernox Cleaner F3.

Full instructions are provided with the products. However, for further details contact the manufacturer directly: SENTINEL PERFORMANCE SOLUTIONS LTD or FERNOX COOKSON ELECTRONICS.

After washing the system, you are advised to use inhibitors such as Sentinel X100 or Fernox Protector F1 to protect the system from corrosion and deposits.

It is important to check the concentration of the inhibitor after each modification to the system and each maintenance check, according to the specifications provided by the manufacturers (relevant tests are available from retailers).

The outlet from the safety valve must be connected to a collection funnel to channel any discharge if servicing is carried out.

Caution: failure to wash the heating system and to add a suitable inhibitor shall invalidate the appliance guarantee and that of other accessories, such as the pump and valves.

6.3. Filling the system

The appliance should be filled slowly to allow any air bubbles to be released through the appropriate vents within the heating system. In closed circuit heating systems, the cold filling pressure of the system must correspond to the expansion vessel pre-inflation pressure.

- In heating systems with an **open** vessel, the circulating liquid may come into contact with the air. During colder months when the heating system is in use, the end user must check the level of water circulating in the expansion vessel regularly. The water content of the recirculation system must remain constant. Practical experience shows that a regular check of the water level must be carried out every fortnight to keep the water content almost constant. If more water is required, perform the filling process, when the boiler has cooled down to room temperature. These precautions are designed to prevent the occurrence of heat stress on the steel body of the boiler.
- In systems featuring a open vessel, the water pressure in the boiler - with the system cold - must not drop below 0.3 bar;
- The water used to fill the heating system must be purified and not contain any air.

Caution!

Do not mix the heating water with anti-freeze or anti-corrosion products in the wrong concentrations! This could damage the seals and cause noisy operation.

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Once all the hydraulic connections have been made, check the seals under pressure by filling the boiler.

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This should be done carefully, in the following sequence:

- open the air relief valves on the radiators, boiler and system;
- gradually open the system filler cock, making sure any automatic air relief valves fitted on the system are working properly;
- close the air relief valves on the radiators as soon as water starts to trickle out;
- check on the system pressure gauge that the pressure reaches a value of approximately 1 bar (this only applies for systems with a closed vessel - consult any local regulations or standards that allow it); for systems featuring an open vessel, the reintegration is automatic through the vessel itself;
- close the system filler cock and then vent any air again through the radiator air relief valves;
- check the seal on all connections;
- after starting the boiler up for the first time and the system is at the right temperature, stop the pump operation and repeat the air venting operations;
- allow the system to cool down and, if necessary, return the water pressure to 1 bar (this only applies for systems with a closed vessel - consult any local regulations or standards that allow it); for systems featuring an open vessel, the reintegration is automatic through the vessel itself;

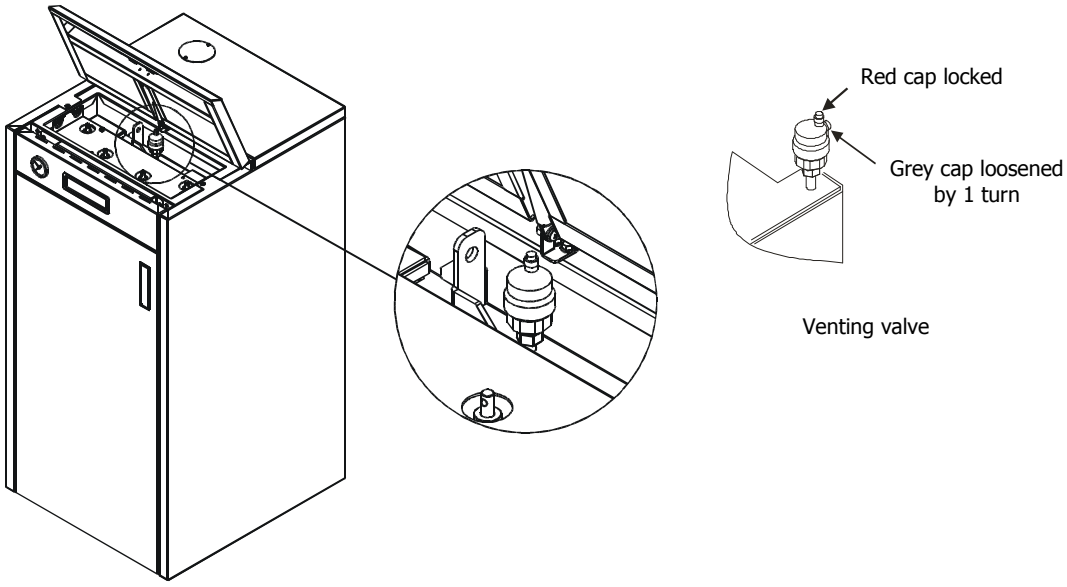
NOTE

In systems with a closed vessel, where permitted, the water pressure in the heating system - when the system is cold - should not drop below 1 bar; if it does, open the system filler cock. This should be done with the system cold.

The pressure gauge in the system allows you to read the pressure in the circuit.

In order to fill the system, the boiler is fitted with a tap **(4)**, with a non-return valve, to fill the heating system manually.

During this operation, the venting of any air inside the system is guaranteed by the automatic vent at the top of the boiler body.



To ensure the valve vents, it is advisable to loosen the grey cap by one revolution and leave the red cap locked *(see figure)*

The system filling pressure **WHEN COLD** must be **1 bar.**

When filling is complete, **always** turn the tap off.

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6.4. Electrical connections

6.4.1. *General warnings*

The electrical safety of the system is only ensured when the same is correctly connected to an efficient earthing system, built in accordance with the provisions of the applicable safety standards: the piping of the gas, plumbing and heating systems are absolutely not suitable.

It is important that you check this fundamental safety requirement; if in doubt, ask for the electrical system to be checked thoroughly by professionally qualified staff, since the boiler manufacturer is not liable for any damage caused by failure to earth the system.

Have professionally qualified staff check that the electrical system is suitable for the maximum electricity consumption of the system, ascertaining specifically that the cross-section of the system cables is suitable for the power consumption of the utilities.

The use of any components which use electricity entails the observance of certain fundamental rules, such as:

- do not touch the appliance with wet and/or damp body parts and/or bare foot;
- do not pull on the electrical cables;
- do not leave the appliance exposed to the weather (rain, sunshine, etc.) unless it is designed specifically for this purpose;
- do not allow children or inexperienced persons to use the appliance.

Connection to 230 V electricity supply

The installation of the electrical accessory components of the boiler requires electrical connection to a mains at **230 V – 50 Hz**: This connection must be made according to best practice in accordance with the applicable CEI standards.

Danger!

The electrical connection must only be performed by an authorised technician.

Before making the connections or performing any servicing of electrical parts, always disconnect the electricity supply and make sure it cannot be re-established inadvertently.

Remember that an easily-accessed bipolar switch with a minimum contact opening of 3 mm must be installed on the electrical power supply line to the boiler, in order to facilitate and speed up any maintenance operations.

The power supply cable must only be replaced by authorised technical personnel. Failure to observe the above recommendations may compromise the safety of the appliance.

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6.4.2. *Wiring diagram of the hot water pellet boiler*

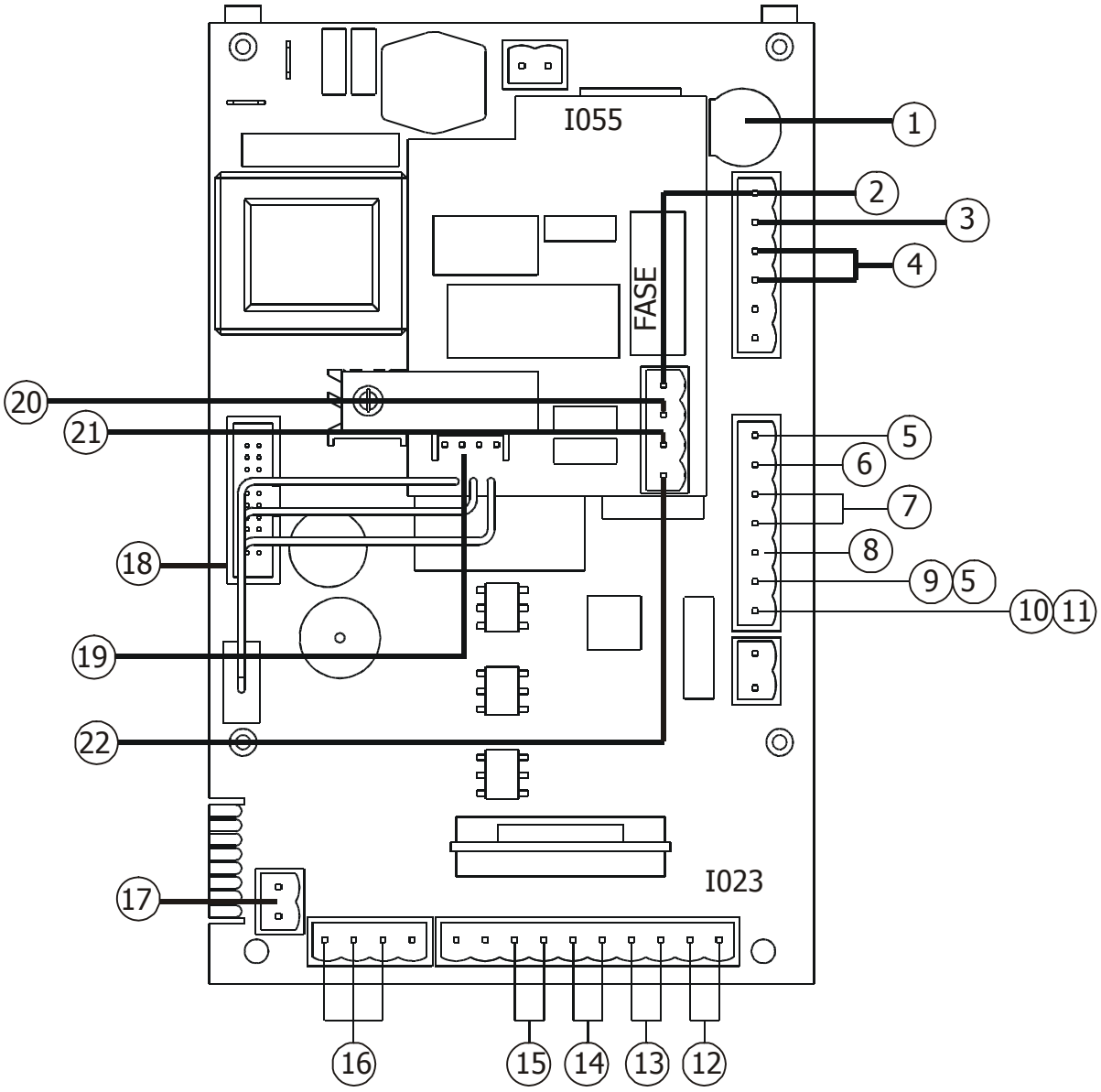

Figure 3. General wiring diagram of the pellet boiler control panel

1. Fuse	12. Smoke sensor
2. Board phase	13. Ambient thermostat
3. Board neutral	14. Internal room sensor
4. Smoke blower fan	15. Water temperature sensor
5. Auger	16. Smoke blower fan rev control
6. Water overload cut-out	17. Water flow meter
7. Pellet igniter	18. Control panel
8. Klixon pressure switch	19. Serial connector (for connection to the I023 board)
9. Pressure switch	20. Pump phase
10. Pump neutral	21. 3-way valve phase (heating)
11. 3-way valve neutral	22. 3-way valve phase (domestic)

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7. GENERAL INSTRUCTIONS

7.1. Starting the system

Press key **5** on the control panel (see chapter 9).

CAUTION:

- You may notice some smoke being released by the boiler when the system is started up, especially if the chimney flue does not have appropriate draft (for instance, insufficient height of the chimney flue or obstruction of the chimney flue outlet gas duct). We recommend that you check the condition of the chimney flue. The same process may be observed during transition periods (in spring and autumn), when the natural draft of the chimney flue does not balance the loss of the system outlet gas duct given the high ambient temperature.
- The incorrect adjustment of the initial fuel dose could cause the boiler to release smoke, due to the insufficient tightness of the seals. If this is the case, you need to adjust the boiler operating parameters - this procedure can only be performed by an authorised, trained and certified technician.

7.2. Boiler operating parameters

The boiler operating mode is defined directly by setting the related thermostat set-point. Nevertheless, you need to consider that the temperature of the inlet water affects the operating mode of the system, with consequences on reliability and efficiency.

CAUTION: the manufacturer guarantees the efficient and reliable functioning of the system consisting of the hot water pellet boiler only if the operating mode falls within the range of parameters specified in Table 3.2 herein.

7.3. Nominal operating mode of the system

The adjustment of the operating parameters must be made when both the boiler and the system have achieved stable thermal conditions.

NOTE:

- The temperature of the return flow of water circulating in a heating system must exceed 60 °C, to avoid the formation of condensation on the internal surfaces of the boiler.
- At the initial start-up of the boiler, you may observe water vapour condensation. This process does not affect the performance of the system and does not cause any operating faults.

7.4. First start-up

Preliminary checks

RED will not be held liable for any damage to persons, animals or property caused by failure to observe the above instructions.

Before starting the boiler, it is advisable to check that:

- the drawing of combustion air and the smoke outlet system are working properly as set out in the applicable standards in force;
- the supply voltage of the electrical accessory components of the boiler is 230 V – 50 Hz;
- the system is full of water;
- any cut-off gate valves on the system are open;
- the external main switch is on;
- the safety valve on the system is not blocked and that it is connected to the sewer drain;
- there are no water leaks;
- the ventilation conditions and minimum clearances for maintenance to be performed are guaranteed.

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7.5. System shutdown

To shut down the system, PRESS key **5** on the control panel; the same one used to start the boiler. If the system is left unused for a relatively short period of time, you are advised to remove the ash deposited on the heating surfaces. These surfaces are within easy reach of the heat exchanger.

CAUTION: if the system is left unused for a long period of time, then you will need to perform thorough cleaning of the heat exchanger of the hot water boiler to remove all the ash deposited. The ash deposited on the metal surfaces has a corrosive effect on carbon steel surfaces, with the ensuing shorter life span of the main modules of the system - heat exchanger of the boiler. It is compulsory to have the maintenance procedures performed, along with the preventive system checks, only by trained service staff, as well as thorough cleaning at the end of every heating season. If these procedures are observed, the system is sure to have a long life span, along with high efficiency and reliability.

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8. OPERATION

8.1. WARNINGS PRIOR TO START-UP

CAUTION!

Installation envisages solely the connection to a flue pipe and so the following evaluation criteria for the installation identification should be considered as valid in accordance with the regulations in force.

For complex and articulated installations, we recommend you contact qualified professionals or authorised service centres.

The manufacturer advises against other types of installations (where smoke is not evacuated along a flue pipe) and will not be held liable for any malfunctioning or faults.

- Avoid touching the boiler during the initial start-up, since the paint hardens during this time. If you touch the paint, the steel surface might be exposed.
- If necessary, touch up the paint with the spray can of the dedicated colour. (see "Pellet boiler accessories")
- It is good practice to guarantee the efficient ventilation in the room during the initial start-up, since the boiler will release some smoke and paint smells.
- Do not stand close to the boiler and as mentioned, air the room. The smoke and paint smell will disappear after about an hour of operation, but remember that they are not in any case harmful.
- Make sure the hydraulic system is perfectly sealed and that there are no water leaks or pressure drops.
- Make sure all the cut-off cocks between the boiler and the system are open.
- Make sure you have vented all the air inside the system before proceeding with the start-up process.
- Make sure the internal devices are functioning properly (water flow meters, thermostats, etc.), and that the combustion chamber and flue pipe are clean, and that the hydraulic circuit is free of any obstructions.

The boiler will undergo expansion and contraction during the start-up and cooling phases, so it may squeak slightly.

This is completely normal, since the structure is made of laminated steel: this should therefore not be considered a defect but rather a characteristic trait.

The standard settings guarantee correct functioning and prevent any overheating during the first few start-up processes.

8.2. CHECK PRIOR TO START-UP

Check all the safety conditions covered previously. Make sure you have read and fully understood the contents of this instruction manual.

Remove all components from the boiler and door. These could burn!!! (instruction manuals and various adhesive labels).

Make sure the brazier for pellet combustion is positioned correctly and rests fully on the base, and that it did not move during any handling of the product.

Check the electrical connection (230 V 50 Hz) and flick the switch on the boiler rear panel **(I/0).** Make sure the display shows *OFF / "CURRENT TIME"*

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8.3. LOADING PELLETS

8.3.1. *Basic fuel requirements*

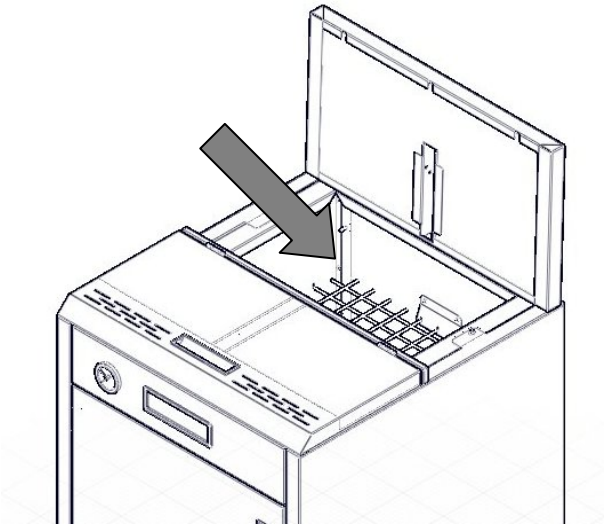
- The fuel, in the form of pellets, must be dry. The appliance manufacturer recommends that the fuel is kept in dry, well aired premises.
- It is strictly forbidden for the fuel to be kept near the boiler; the minimum safety clearance between the fuel and the appliance is 400 mm.
- The system manufacturer recommends an optimal distance between the boiler and the fuel tank of at least 1000 mm. It is advisable for the fuel to be kept in a room close to the one where the boiler is installed.
- The fire prevention regulations must be taken into consideration during the system installation procedure and during the fuel storage. It is also recommended that a fire extinguisher be fitted in a safe and easily accessible place.

8.3.2. *Loading the boiler*

Pellets can be loaded manually or automatically. The empty tank holds up to 110 litres, in other words approximately 70 kg of pellets.

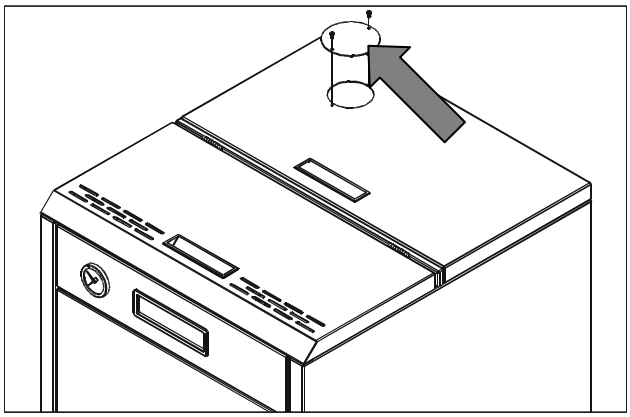
Manual Loading:

- Open the top flap of the boiler directly and pour in the pellets



Automatic loading (to be teamed with the optional 100/200 or 400 kg remote tank – see accessories):

- Remove the round plate from the flap, cut the insulation and insert the tank pipe. Next, load the optional tank.



Never remove the protection grille inside the tank; during loading, avoid the pellet sack coming into contact with hot surfaces.

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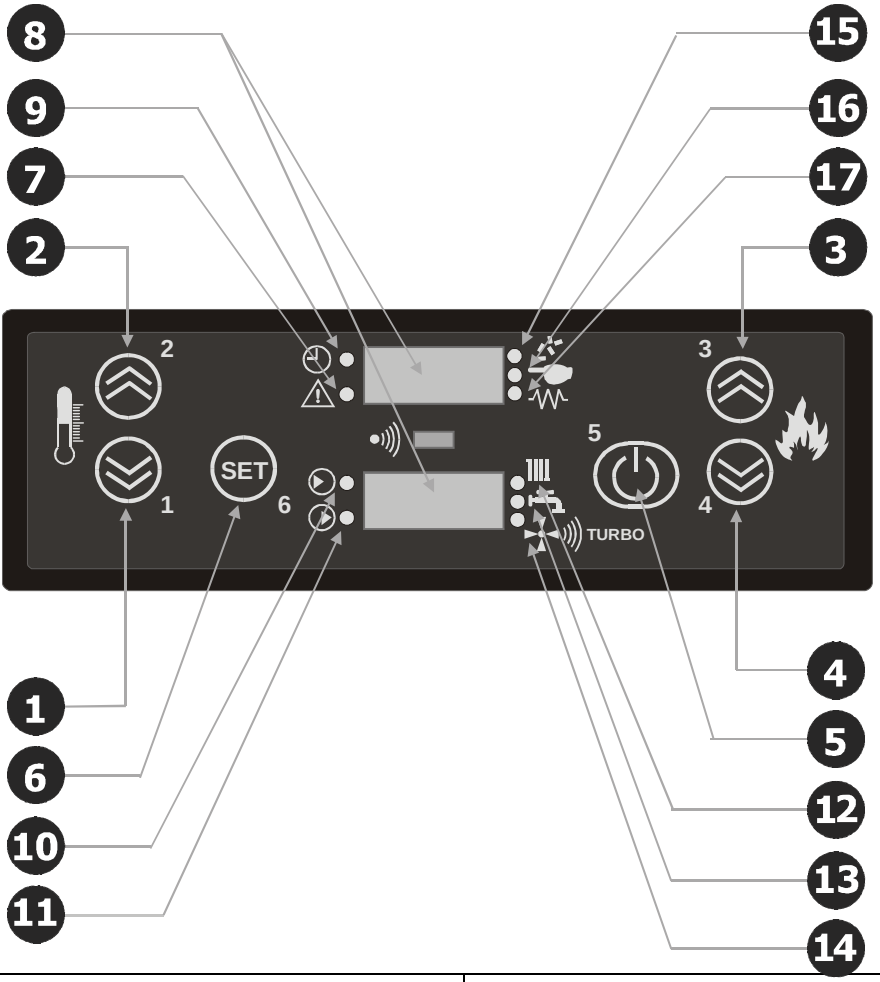
9. PROGRAMMING AND SETTINGS

9.1. CONTROL PANEL

INDEX OF BUTTONS AND INDICATOR LIGHTS



BUTTONS	**INDICATOR LIGHTS**
1. Decreases temperature set point / programming functions	7. General alarm (see specifics)
2. Increases temperature set point / programming functions	8. D1-D2 display
3. Scroll up the programming menu to increase / vary the fan speed and increase	9. Timer enabled/disabled indicator light
4. Scroll down the programming menu to decrease/smoke blower diagnostics and decrease	10. Indicator light indicating when the thermostat requires power
5. boiler start-up / switch-off	11. Water pump enabled/disabled indicator light
6. Air and water thermostats temperature set point / access to programming menus	12. Heating system enabled indicator light
	13. DHW system enabled indicator light
	14. Exchanger ON indicator light
	15. Auger enabled/disabled indicator light
	16. NOT ENABLED
	17. Pellet igniter ON indicator light

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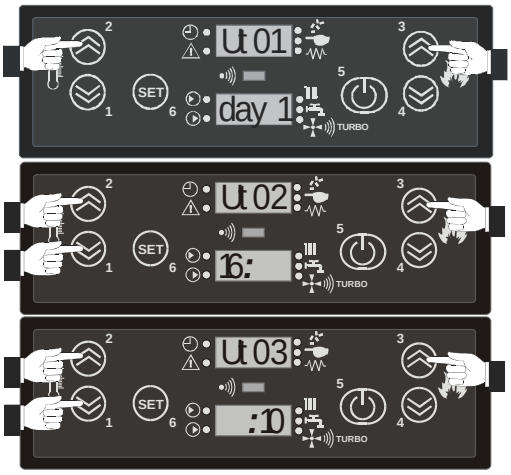
9.1.1. SETTING THE CURRENT TIME

Press in quick sequence buttons ❷ and ❸ to access technical parameter *UT01*. Press button ❸ once to access item UT02 which displays the hours. Use button ❶ or ❷ to decrease or increase the hour.

To confirm the chosen hour and move on to the minutes setting, press the ❸ **button.** (item *UT03* will be displayed)

Use buttons ❶ or ❷ to decrease or increase the minutes, in steps of +/- 1 minute.

To confirm the chosen time and complete the setting, press ❺



Sequence for accessing the hour and minutes setting menu.

9.1.2. Storing the recipe in the boiler.

THE RECIPE SELECTION PROCEDURE IS ONLY ENABLED WITH THE BOILER TURNED OFF.

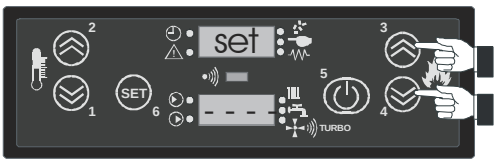
Press in rapid sequence or simultaneously buttons ❸ and ❹.

"SET" will be displayed alternately with the recipe number. The recipes are +3;+2;+1;0;-1;-2;-3.

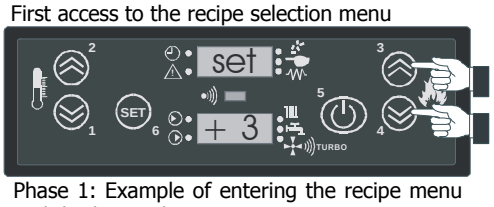
Otherwise, if the display shows "- - - -", this means no recipe is currently selected (first start-up).

To quit the menu without making any changes, press the ❸ button or the ❹ button or wait 120 seconds without pressing any buttons.

To modify or set a new recipe, press buttons ❶ or ❷ in order to find the desired recipe.



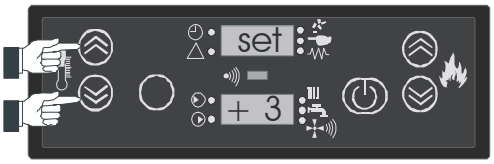
First access to the recipe selection menu



Phase 1: Example of entering the recipe menu and displaying the previous setting

To confirm your choice, you must hold down the ❺ button until the display shows the time and the word "OFF".

The default boiler recipe is no. 0 for all versions and for all Countries.



Phase 2: To choose the desired recipe, press the buttons shown

9.2. ADJUSTING THE WATER TEMPERATURE IN THE BOILER

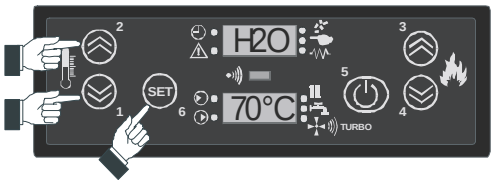
The boiler is factory set with a series of standard parameters which allow it to function correctly (water temperature of 65 °C and room temperature of 22 °C) but if the user wants to change these parameters, (s)he can do so as follows:

The parameters to be set are as follows:

Room T This is the temperature you wish to reach inside the room where the boiler is installed. To adjust it, press **ONCE the ❻ "SET" button and change the values using button ❶** or **❷**

T H_2O = Maximum boiler water temperature. When this temperature is reached, the boiler diminishes its performance to avoid overheating. The standard temperature set is 65 °C and it can be set to below 40 °C or above 80 °C.

Setting the room temperature



Setting the system water temperature

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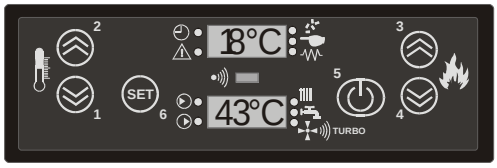
To adjust it, press **TWICE in quick sequence the ❻ "SET" button and change the values using button ❶** or **❷**
We recommend you never set the temperature to below 50/55 °C to avoid condensation forming in the boiler

9.3. FIRST START-UP

At this stage, you are ready to start up your boiler. Below is a brief description of what to do to start up and shut down the boiler in order to satisfy your curiosity and expectations.

9.3.1. Boiler start-up

To start the boiler up **from the panel,** press button **❺** for a few seconds.
After approximately 15 minutes, the panel displays (8) show the room temperature on the upper display and the temperature of the water in the boiler on the lower display. The boiler is ON!
If the start-up phase is completed and no flame appears (boiler off), the display **(8)** will show "**Failed start-up alarm**" accompanied by an intermittent acoustic message. If this is the case, switch the boiler off by pressing the **❺** button for a few seconds.
The display **(8)** will show "Off / current time".
Check the brazier, are there any pellets?



Boiler on and operating regularly

If this is the first start-up, the fuel may well not be able to reach the combustion chamber in time or in the correct quantity programmed, since it has to travel all the way from the tank to the brazier. If this is the case, the brazier is empty or contains very few pellets.

REMOVE THE PELLET FROM THE BRAZIER AND REPEAT THE START-UP PROCESS BY PRESSING THE ❺ BUTTON FOR A FEW SECONDS.

If, after a repeated number of start-up attempts, there is still no flame despite a regular supply of pellets, this may mean there is a problem with the boiler components or ascribable to incorrect installation.

REMOVE THE PELLET FROM THE BRAZIER AND CALL FOR AN AUTHORISED TECHNICIAN.

9.3.2. Boiler switch-off

The boiler can be switched off at any time.

To switch the boiler off, hold down the ❺ button for a few seconds

NEVER SWITCH THE BOILER OFF BY CUTTING OFF THE ELECTRICITY SUPPLY. Always allow the switch-off phase to finish, otherwise you could damage the structure and have trouble during subsequent start-ups.

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9.4. OPERATION

9.4.1. Operating principle

When the boiler is switched on at the ❺ button, after the initial start-up phase which lasts on average 15 minutes, and during which the display **(8)** shows the intermediate phases "FAN ON – LOAD WOOD – FIRE ON", the boiler runs in AUTOMATIC mode at average power, and performs a first check of the temperatures to attain.

Boiler on and operating regularly

The room temperature is shown on the upper display **(8)** of the panel while the temperature of the water inside the boiler is shown on the lower display alternately with H_2O.

In this operating mode, only the desired room temperature can be adjusted using buttons ❶ and ❷.

Adjusting the temperature of the thermostat (temperature to be attained in the room)

The primary goal of the boiler is to take the room temperature detected by the thermostat (internal or external) to the temperature set by the user.

Consequently, depending on the room temperature, the following evaluation is made:

Room temperature < Thermostat temperature?

- **YES**

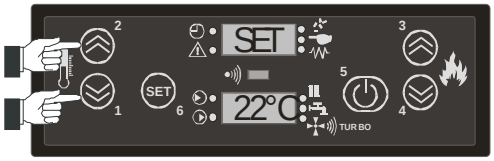
  This means the boiler has to heat the room and will therefore begin to raise its burning pace progressively up to maximum power
- **NO**

  This means the boiler has achieved its goal of heating the room and will therefore lower its power down to minimum and will stay there until the room temperature drops below the temperature set on the thermostat; unless the ECO-STOP function has been enabled (See paragraph 4.9.3)

It is vital for correct functioning that the room thermostat (internal or external) detects the temperature reliably, since correct operation is based almost entirely on the above check.

9.4.2. Operating mode

The AUTOMATIC mode makes it possible to arrange and set a given temperature to attain. In this operating mode, the boiler will automatically adjust its heat output in order to keep the value set previously, i.e. the temperature in the room, constant.



Adjusting the temperature of the thermostat (temperature to be attained in the room)

As described above, the temperature is adjusted using buttons ❶ and ❷ in steps of 1 degree Celsius.

This setting will be stored for the subsequent start-up.

Adjusting the front fan speed

Operating examples:

If the room temperature detected by the room sensor situated on the boiler is 15 °C and the temperature set on the thermostat is 22 °C, the boiler gradually reaches maximum power and on attaining the temperature set (22 °C), it will switch to minimum power or to ECO-STOP mode *(See paragraph 4.9.3)*

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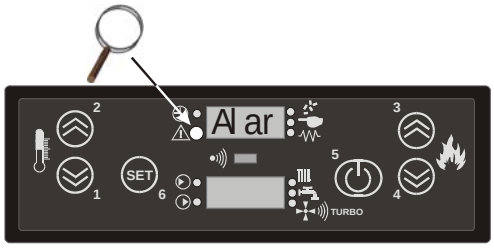
Do remember however that the temperature assigned to the thermostat is only indicative and it is up to the user to find the correct parameter in the room where the boiler is installed (for instance, (s)he needs to set 22 °C in the boiler thermostat to have 20 °C throughout the room). This happens because the room thermostat is situated near the body of the boiler and is consequently affected by the heat emanated by the same.

In this operating mode, it is the user who starts up and switches off the boiler by pressing the ❺ button for a few seconds.

Once in a while, it is advisable to check the contents of the tank, to prevent the fire from dying out due to lack of fuel.

CAUTION!

If, during boiler operation, conditions arise which modify the normal operating status of the same, the general alarm indicator light (7) is turned on, accompanied by an acoustic beep (see paragraph entitled "boiler shutdown") and the boiler reacts by beginning the complete shutdown procedure.



Boiler alarm and shutdown

In the event of an electrical power failure during boiler start-up or operation, the boiler cools down and is automatically restarted when the power returns.

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9.4.2.1. Internal thermostat - Position of the internal room sensor

Only once installation is complete is it advisable to ensure the room sensor is extracted from its seat and away from the hot structure of the boiler, to prevent it detecting incorrect temperatures.

The sensor is situated at the rear of the boiler (fig.4).

When the internal thermostat is used, it is always advisable to set a slightly higher temperature by a few degrees (for instance, 22 °C if you want 20 °C in the room) because the sensor is always affected by the hot boiler body.

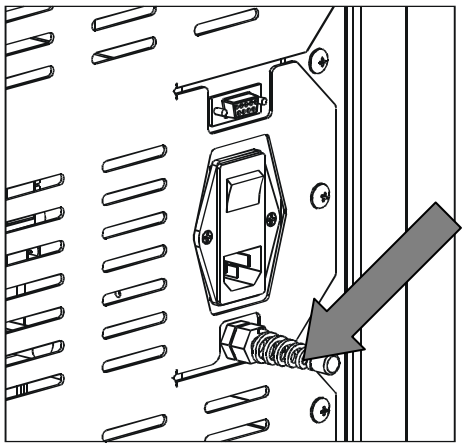

Figure 4 - Internal room sensor

9.4.2.2. Operation using the external thermostat

EXTERNAL TEHERMOSTAT (not included with the boiler and under the user's responsibility)

The boiler can also be temperature controlled by an external room thermostat. If the same is situated in a central position of the room where the boiler is installed, it guarantees greater consistency between the heating temperature required from the boiler and the actual temperature supplied by the same.

9.4.2.3. External thermostat connection

Connect the two wires in the cable from the wall-mounted thermostat to the connector terminal.

Insert the connector into the purpose-provided socket at the rear of the boiler. *Figure 5.*

Once the thermostat is connected, you need to disable the internal thermostat fitted in the boiler.

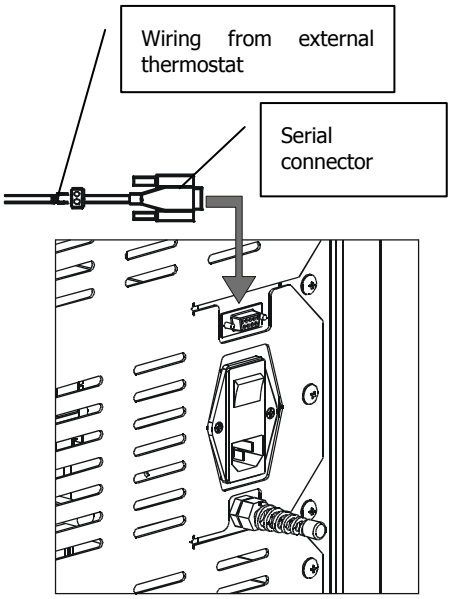

Figure 5 - Connecting the thermostat serial connector to the purpose-designed socket at the rear of the boiler

Do this as follows:

- Press the ❷ button followed immediately after by the ❸ button on the control panel. The control panel display shows UT01/OFF
- Press the ❸ button repeatedly until the panel display shows "*UT16";* the panel display shows UT16
- Press the ❹ button and hold it down and press the ❸ button to get to item *"UT20"*; the display shows UT20/OFF
- Using the ❶ or ❷ buttons, set this parameter to "ON" or "OFF". If you set it to "ON", the internal thermostat is enabled; vice versa, if the parameter is set to "OFF", the external thermostat is enabled and the internal one is disabled.
- Consequently, if you need to enable the external thermostat, set the "UT20" parameter to "OFF"

To exit the menu, press the ❺ button or wait 60 seconds

Enabling the external thermostat and consequent disabling of the internal thermostat

9.4.3. Setting the ECO-STOP mode

The thermostat controls the operation of the boiler, **switching it off when the temperature set is attained and restarting it whenever necessary.**

This function can be enabled or disabled, or you can choose with what frequency the boiler should be switched off**.**

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1st CASE: ECO-STOP Disabled (default)
If the function is disabled, on reaching the temperature set, the boiler will continue to operate at minimum power until the thermostat demands more power or until the user decides to switch it off manually.

The boiler is factory set with the ECO-STOP mode disabled, as in the above example.

2nd CASE: ECO-STOP Enabled and time-controlled
If this function is enabled, on reaching the temperature set, the boiler drops to minimum power for the amount of time set by the user, which can vary from a minimum of 1 minute to a maximum of 30 minutes. If no further temperature demands are made during this time, the boiler will automatically be switched off. The boiler will automatically restart only if the thermostat demands a higher temperature.

Example with ECO-STOP enabled and time-controlled:
If the room temperature detected by the thermostat sensor (internal or external) is 15 °C and the temperature set on the thermostat is 20 °C, the boiler rises (according to a default ramp) to maximum power and on reaching the target (20 °C), the boiler drops back down to minimum power. The boiler remains in this mode for 15 minutes and if the room temperature remains above the temperature set, the boiler is automatically switched off, temporarily, displaying "*Eco Stop*". When the room temperature drops below the value set on the thermostat (for instance, 18 °C), the boiler is prepared for restarting automatically ("COOL-FIRE") and then runs until it achieves 20 °C again.
If the boiler is equipped with the domestic hot water production kit and hot water is demanded for more than 30 seconds (through the water flow meter), the boiler restarts immediately, skipping the above cooling phases ("COOL-FIRE")

All the automatic restarting operations, whether because the room temperature drops or whether hot water is demanded, are possible if the boiler is switched on or in ECO-STOP mode.
If the user switches the boiler off manually by pressing the ❺ button, the boiler does not perform automatic restarts when the temperature varies or if hot water is demanded
If the domestic hot water production kit is fitted, it is advisable to disable the ECO-STOP mode in order to shorten the response times to the hot water demand.

Do remember however that the temperature assigned to the thermostat is only indicative and it is up to the user to find the correct parameter in the room where the boiler is installed (for instance, (s)he needs to set 22 °C in the thermostat to have 20 °C). In this mode, start-up can be performed by the user by resetting the thermostat temperature to a value higher than the temperature inside the room or by pressing the ❺ button for a few seconds, to switch to "Off" mode and then, by pressing the same button again, the boiler is restarted.

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HOW THE BOILER BEHAVES WITH THE TIMER ON:

The boiler is in…	The timer intervenes to…	The boiler…
ECO STOP	Switch the boiler off	It is switched off permanently and set to OFF
ECO STOP	Start the boiler	It remains in ECO STOP mode

9.4.3.1. Enabling/Disabling ECO-STOP mode

9.4.3.2. TO BE PERFORMED BY THE FITTER

- Press the main switch situated at the rear of the boiler, setting it to "I"; the control panel display shows OFF/CURRENT TIME
- Press the ❷ button followed immediately after by the ❸ button on the control panel. The control panel display shows UT01/OFF
- Press the ❸ button repeatedly until the panel display shows "*UT16";* the panel display shows UT16/OFF
- Press the ❹ button and hold it down and press the ❸ button to get to item *"UT19"*; the display shows UT19/OFF
- Press the ❶ or ❷ button to enabled/disable the function or change the ECO-STOP mode intervention time; the panel display shows UT19/OFF or UT19/1', UT19/2', UT19/3'……. UT19/30'
- Press the ❺ button for a few seconds to confirm until the display shows OFF/CURRENT TIME

9.4.4. Programmed mode (with timer)

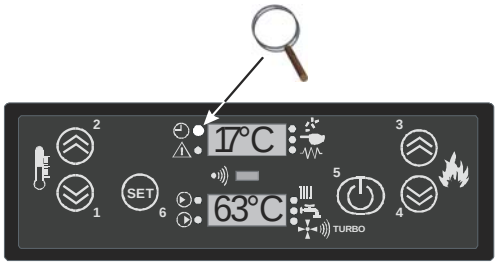
This operating mode - signalled by the lighting of indicator light **(9)** on the display - makes it possible to programme the start-up and switch-off of the boiler automatically over a weekly cycle.

The boiler is factory set with the PROGRAMMED mode disabled. (indicator light **9** is off)

The following are fundamental characteristics of the PROGRAMMED mode:

- **The start day**
- **The clock**
- **The programme** (4 daily programmes are available)

Do remember that the exact time is only necessary when weekly programming is performed via TIMER. Vice versa, the incorrect time does not jeopardise the boiler operation in any way.



On the display (8) of the stove	corresponds to	PROGRAMMED mode is active
DAY1	Monday	Activated
DAY2	Tuesday	Activated
DAY3	Wednesday	Activated
DAY4	Thursday	Activated
DAY5	Friday	Activated
DAY6	Saturday	Activated
DAY7	Sunday	Activated
OFF	Off	Deactivated

Figure 6 – Days of the week correspondence table

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9.4.4.1.
Start day (abbreviation on the display UT 01)

It is the current day which is set first and used as reference for the programming sequence. To understand the full meaning, ask yourself: what day is it today?
Let's suppose the day you read this paragraph is a **Friday**. With the help of the table opposite (*Figure 7*), you'll see that Friday corresponds to **DAY 5**. You will have to assign the value of **DAY 5** as the start day for the boiler.
To set this value, press buttons ❷ and ❸ in sequence. The abbreviation *"UT 01"* will be displayed, alternately with "OFF". Now press the ❶ button once to display "DAY 7". You will immediately see that indicator light **(9)** on the display has lit up.

Press the ❶ button twice more to display "DAY 6 → **DAY 5**" in sequence.

Now the display **(8)** alternates "**DAY 5**" with *"UT 01"*.

The same procedure can be implemented using the ❷ button; the only difference is that the menu scrolling is the other way around, i.e.:

"OFF →DAY 1→DAY 2→DAY 3→DAY 4→**DAY 5**"

To store the setting, press the ❸ button.

Buttons for menu access.

IN SHORT:

To **ENABLE** the PROGRAMMED mode (indicator light **9** on), press buttons ❷ and ❸ in sequence to display *"UT 01"*. Then press the ❶ or ❷ buttons to decrease or increase the start day. To store, press the ❸ button.

CAUTION!

Any day stored, with the exception of "OFF", enables the PROGRAMMED mode.

To **DISABLE** the PROGRAMMED mode (indicator light 9 off), press the ❷ and ❸ buttons in sequence to display "UT 01". Then press the ❶ or ❷ buttons to display "OFF" and confirm by pressing the ❸ button.

Only the stored abbreviation "OFF" disables the PROGRAMMED mode.

Choosing the current day and enabling the programmed mode.

9.4.4.2. Clock (abbreviation on the UT 02 and UT 03)

See paragraph 4.5.1. relating to the setting the current time to find out how to set the current time.

The main steps are nonetheless summarised below.

- **Setting the HOURS (abbreviation on the UT 02)**

  Press the ❷ and ❸ buttons to access the set-up menu and parameter "UT 01", use the ❸ button to access parameter "UT02" which corresponds to the time on the clock expressed in HOURS.

  The display **(8)** shows alternately the abbreviation "UT 02" and an indication of the internal boiler time at that moment.

  Use the ❶ (increase) or ❷ (decrease) buttons to adjust the hour.

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To store, press the ❸ button to take you to the subsequent display of "UT 03" to set the minutes.

- **Setting the MINUTES (abbreviation on the UT 03)**

  The display **(8)** shows alternately the abbreviation "UT 03" and an indication of the clock minutes at that moment.

  Use the ❶ (increase) or ❷ (decrease) buttons to adjust the minutes.

  To store, press the ❸ button to take you to the subsequent display of "UT 04".

The abbreviation "UT 04" is not part of the PROGRAMMED mode.

It is for the exclusive use of the installer or authorised technician via restricted access.

Press button 3 again to proceed and display the abbreviation "UT 05".

9.4.4.3. *Programme*

The COMPACT boiler allows you to set up to 4 operating programmes spread across the day or an entire week.

Each programme is distinguished by three fundamental steps:

- **The boiler switch-on time (which must be between 00:00 and 23:40)**
- **The boiler switch-off time (which must be more than the corresponding switch-on time and be maximum 23:50)**
- **The days on which boiler switch-on and switch-off must be ON or OFF**

Let's analyse **PROGRAMME 1** (summarised in the table below), which is the first of four programmes in the programming sequence.

PROGRAMME 1			
Abbreviation on the display (8)	UT 05	UT 06	UT 07
Data to enter	Switch-on Time	Switch-off Time	Days ON or OFF On/Off 1,2,3,4,5,6,7

PROGRAMME 1: setting **the boiler switch-on time.**

We are at step *UT 05*. The boiler panel display **(8)** alternates the abbreviation *UT 05* with a time value in hours and minutes. Using the ❶ (increase) or ❷ (decrease) keys, set the boiler **switch-on time** for this programme. Each time the key is pressed, the time increases or decreases by 10 minutes. Hold the key down to speed up the increase or decrease progressively, so that you can make a large modification quickly. Once the desired time has been set, store it by pressing the ❸ key, which automatically takes you to subsequent step *UT 06*.

PROGRAMME 1: setting **the boiler switch-off time.**

We are at step *UT 06*. The boiler panel display **(8)** alternates the abbreviation *UT 06* with a time value in hours and minutes. Using the

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❶ (increase) or ❷ (decrease) keys, set the boiler **switch-off time** for this programme. Each time the key is pressed, the time increases or decreases by 10 minutes. Hold the key down to speed up the increase or decrease progressively, so that you can make a large modification quickly. Once the desired time has been set, store it by pressing the ❸ key, which automatically takes you to subsequent step *UT 07*.

PROGRAMME 1: setting the **ON or OFF days.**

We are at step *UT 07*. The boiler display **(8)** alternates the abbreviations *UT 07* and any one of: ON 1, OFF 1, ON 2, OFF 2, ON 3, OFF 3, ON 4, OFF 4, ON 5, OFF 5, ON 6, OFF 6, ON 7, OFF 7, where the digits refer to the day of the week (see table), ON means "ENABLED" and OFF means "DISABLED". In step *UT 07*, the ❷ key scrolls through the day reference number, whereas the ❶ key enables them, or disables them. The days are then scrolled with the ❷ key and, for each day, use the ❶ key to decide whether it should be ON or OFF. Once the setting has been made, it is stored by pressing the ❸ key to move on automatically to step *UT 08*.

1	Corresponds to a **MONDAY**
2	Corresponds to a **TUESDAY**
3	Corresponds to a **WEDNESDAY**
4	Corresponds to a **THURSDAY**
5	Corresponds to a **FRIDAY**
6	Corresponds to a **SATURDAY**
7	Corresponds to a **SUNDAY**

For example. Once the boiler switch-on (at 7:30) and switch-off (at 9:30) times of programme 1 have been set, you will have reached step *UT 07*. You want to programme the boiler so that it performs this programme on Monday, Wednesday and Friday.

- Press the ❷ key in sequence to reach position ON 1, or OFF 1. If you see ON 1, then do nothing, but if you see OFF 1, press the ❶ key to read ON 1 (Monday ON).
- Now press the ❷ key once to go to position ON 2, or OFF 2 and press the ❶ key again (or not) to read OFF 2 (Tuesday OFF).
- Press the ❷ key once to go to position ON 3, or OFF 3 and then press the ❶ key (or not) to read ON 3 (Wednesday ON).
- Press the ❷ key once to go to position ON 4, or OFF 4 and then press the ❶ key (or not) to read OFF 4 (Thursday OFF).
- Press the ❷ key once to go to position ON 5, or OFF 5 and then press the ❶ key (or not) to read ON 5 (Friday ON).
- Press the ❷ key once to go to position ON 6, or OFF 6 and then press the ❶ key (or not) to read OFF 6 (Saturday OFF).
- Press the ❷ key once to go to position ON 7, or OFF 7 and then press the ❶ key (or not) to read OFF 7 (Sunday OFF).
- Lastly, press the ❸ key to store the entire enabling set-up of programme 1 and automatically move on to step *UT 08*, i.e. to enter **PROGRAMME 2.**

PROGRAMME 2			
Abbreviation on the display (8)	UT 08	UT 09	UT 10
Data to enter	Switch-on Time	Switch-off Time	Days ON or OFF On/Off 1,2,3,4,5,6,7

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It is the second of the four available programmes. The setting method is the same as for the above programme.

PROGRAMME 3			
Abbreviation on the display (8)	UT 11	UT 12	UT 13
Data to enter	Switch-on Time	Switch-off Time	Days ON or OFF On/Off 1,2,3,4,5,6,7

It is the third of the four available programmes. The setting method is the same as for PROGRAMME 1.

PROGRAMME 4			
Abbreviation on the display (8)	UT 14	UT 15	UT 16
Data to enter	Switch-on Time	Switch-off Time	Days ON or OFF On/Off 1,2,3,4,5,6,7

It is the last of the four available programmes. The setting method is the same as for PROGRAMME 1.

TO EXIT THE PROGRAMMING SEQUENCE, PRESS BUTTON 3 AGAIN ONCE YOU HAVE REACHED STEP "UT 16".

IMPORTANT NOTE

The boiler takes 20 minutes to start up before sufficiently hot air is released and another 10 minutes approximately before it is running regularly. To adjust the switch-on time, please take this time into consideration. Similarly, the boiler takes approximately 30 minutes to shut down, during which time the heat accumulated by the appliance is released into the room. Take this time into consideration for considerable fuel savings.

9.5. PROGRAMMING EXAMPLE

Here is a complete programming example, where reference is made to a weekly heating cycle in a home which is occupied full-time, by occupants who come home for lunch and in the late afternoon.

During the week, the occupants want the heating to be on when they wake up, during their lunch break and when they get in from work, whereas on Saturdays and Sundays, the heating should always be on.

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PROGRAMME 1 (6:30-8:00 Mon, Tues, Wed, Thur, Fri)

DESCRIPTION	PRESS	STEP	DISPLAY	CONFIRM
Entering the programming sequence	Key 3	UT 01	Day 1…Day 7..Off	
Today is Thursday (Day 4)	Btn 1 or Btn 2	UT 01	Day 4	Btn 3
The time now is 18 and...	Btn 1 or Btn 2	UT 02	18	Btn 3
12 minutes	Btn 1 or Btn 2	UT 03	12	Btn 3
Unused step (for maintenance)		UT 04		Btn 3
Programme 1: boiler switch-on time 6:30 (hot at 7:00)	Btn 1 or Btn 2	UT 05	6:30	Btn 3
Programme 1: boiler switch-off time 08:00 (cold at 08:30)	Btn 1 or Btn 2	UT 06	08:00	Btn 3
Programme 1: day ON Monday	Btn 2	UT 07	ON 1 or OFF 1	
Programme 1: day ON Monday	Btn 1	UT 07	ON 1	
Programme 1: day ON Tuesday	Btn 2	UT 07	ON 2 or OFF 2	
Programme 1: day ON Tuesday	Btn 1	UT 07	ON 2	
Programme 1: day ON Wednesday	Btn 2	UT 07	ON 3 or OFF 3	
Programme 1: day ON Wednesday	Btn 1	UT 07	ON 3	
Programme 1: day ON Thursday	Btn 2	UT 07	ON 4 or OFF 4	
Programme 1: day ON Thursday	Btn 1	UT 07	ON 4	
Programme 1: day ON Friday	Btn 2	UT 07	ON 5 or OFF 5	
Programme 1: day ON Friday	Btn 1	UT 07	ON 5	
Programme 1: day ON Saturday	Btn 2	UT 07	ON 6 or OFF 6	
Programme 1: day ON Saturday	Btn 1	UT 07	OFF 6	
Programme 1: day ON Sunday	Btn 2	UT 07	ON 7 or OFF 7	
Programme 1: day ON Sunday	Btn 1	UT 07	OFF 7	
Programme 1: CONFIRM		UT 08		Btn 3

PROGRAMME 2 (11:30-13:00 Mon, Tues, Wed, Thur, Fri)

DESCRIPTION	PRESS	STEP	DISPLAY	CONFIRM
Programme 2: boiler switch-on time 11:30 (hot at 12:00)	Btn 1 or Btn 2	UT 05	11 : 30	Btn 3
Programme 2: boiler switch-off time 13:00 (cold at 13:30)	Btn 1 or Btn 2	UT 06	13 :00	Btn 3
Programme 2: day ON Monday	Btn 2	UT 07	ON 1 or OFF 1	
Programme 2: day ON Monday	Btn 1	UT 07	ON 1	
Programme 2: day ON Tuesday	Btn 2	UT 07	ON 2 or OFF 2	
Programme 2: day ON Tuesday	Btn 1	UT 07	ON 2	
Programme 2: day ON Wednesday	Btn 2	UT 07	ON 3 or OFF 3	
Programme 2: day ON Wednesday	Btn 1	UT 07	ON 3	
Programme 2: day ON Thursday	Btn 2	UT 07	ON 4 or OFF 4	
Programme 2: day ON Thursday	Btn 1	UT 07	ON 4	
Programme 2: day ON Friday	Btn 2	UT 07	ON 5 or OFF 5	
Programme 2: day ON Friday	Btn 1	UT 07	ON 5	
Programme 2: day ON Saturday	Btn 2	UT 07	ON 6 or OFF 6	
Programme 2: day ON Saturday	Btn 1	UT 07	OFF 6	
Programme 2: day ON Sunday	Btn 2	UT 07	ON 7 or OFF 7	
Programme 2: day ON Sunday	Btn 1	UT 07	OFF 7	
Programme 2: CONFIRM		UT 08		Btn 3

PROGRAMME 3 (16:30-21:30 Mon, Tues, Wed, Thur, Fri)

DESCRIPTION	PRESS	STEP	DISPLAY	CONFIRM
Programme 3: boiler switch-on time 16:30 (hot at 17:00)	Btn 1 or Btn 2	UT 05	16 : 30	Btn 3
Programme 3: boiler switch-off time 21:30 (cold at 22:00)	Btn 1 or Btn 2	UT 06	21 :30	Btn 3
Programme 3: day ON Monday	Btn 2	UT 07	ON 1 or OFF 1	
Programme 3: day ON Monday	Btn 1	UT 07	ON 1	
Programme 3: day ON Tuesday	Btn 2	UT 07	ON 2 or OFF 2	
Programme 3: day ON Tuesday	Btn 1	UT 07	ON 2	
Programme 3: day ON Wednesday	Btn 2	UT 07	ON 3 or OFF 3	
Programme 3: day ON Wednesday	Btn 1	UT 07	ON 3	
Programme 3: day ON Thursday	Btn 2	UT 07	ON 4 or OFF 4	
Programme 3: day ON Thursday	Btn 1	UT 07	ON 4	
Programme 3: day ON Friday	Btn 2	UT 07	ON 5 or OFF 5	
Programme 3: day ON Friday	Btn 1	UT 07	ON 5	
Programme 3: day ON Saturday	Btn 2	UT 07	ON 6 or OFF 6	
Programme 3: day ON Saturday	Btn 1	UT 07	OFF 6	
Programme 3: day ON Sunday	Btn 2	UT 07	ON 7 or OFF 7	
Programme 3: day ON Sunday	Btn 1	UT 07	OFF 7	
Programme 3: CONFIRM		UT 08		Btn 3

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PROGRAMMA 4 (7:30-22:30 Sat, Sun)

DESCRIPTION	PRESS	STEP	DISPLAY	CONFIRM
Programme 4: boiler switch-on time 07:30 (hot at 08:00)	Btn 1 or Btn 2	UT 05	7 : 30	Btn 3
Programme 4: boiler switch-off time 22:30 (cold at 23:00)	Btn 1 or Btn 2	UT 06	22 :30	Btn 3
Programme 4: day OFF Monday	Btn 2	UT 07	ON 1 or OFF 1	
Programme 4: day OFF Monday	Btn 1	UT 07	OFF 1	
Programme 4: day OFF Tuesday	Btn 2	UT 07	ON 2 or OFF 2	
Programme 4: day OFF Tuesday	Btn 1	UT 07	OFF 2	
Programme 4: day OFF Wednesday	Btn 2	UT 07	ON 3 or OFF 3	
Programme 4: day OFF Wednesday	Btn 1	UT 07	OFF 3	
Programme 4: day OFF Thursday	Btn 2	UT 07	ON 4 or OFF 4	
Programme 4: day OFF Thursday	Btn 1	UT 07	OFF 4	
Programme 4: day OFF Friday	Btn 2	UT 07	ON 5 or OFF 5	
Programme 4: day OFF Friday	Btn 1	UT 07	OFF 5	
Programme 4: day ON Saturday	Btn 2	UT 07	ON 6 or OFF 6	
Programme 4: day ON Saturday	Btn 1	UT 07	ON 6	
Programme 4: day ON Sunday	Btn 2	UT 07	ON 7 or OFF 7	
Programme 4: day ON Sunday	Btn 1	UT 07	ON 7	
Programme 4: CONFIRM		UT 08		Btn 3

If a programme is not used, you need to set all the days of the week relating to that programme to "OFF".

DESCRIPTION	PRESS	STEP	DISPLAY	CONFIRM
Programme 4: boiler switch-on time - NOT USED		UT ..	ANY	Btn 3
Programme 4: boiler switch-off time - NOT USED		UT ..	ANY	Btn 3
Programme 4: day OFF Monday	Btn 2	UT ..	ON 1 or OFF 1	
Programme 4: day OFF Monday	Btn 1	UT ..	OFF 1	
Programme 4: day OFF Tuesday	Btn 2	UT ..	ON 2 or OFF 2	
Programme 4: day OFF Tuesday	Btn 1	UT ..	OFF 2	
Programme 4: day OFF Wednesday	Btn 2	UT ..	ON 3 or OFF 3	
Programme 4: day OFF Wednesday	Btn 1	UT ..	OFF 3	
Programme 4: day OFF Thursday	Btn 2	UT ..	ON 4 or OFF 4	
Programme 4: day OFF Thursday	Btn 1	UT ..	OFF 4	
Programme 4: day OFF Friday	Btn 2	UT ..	ON 5 or OFF 5	
Programme 4: day OFF Friday	Btn 1	UT ..	OFF 5	
Programme 4: day OFF Saturday	Btn 2	UT ..	ON 6 or OFF 6	
Programme 4: day OFF Saturday	Btn 1	UT ..	OFF 6	
Programme 4: day OFF Sunday	Btn 2	UT ..	ON 7 or OFF 7	
Programme 4: day OFF Sunday	Btn 1	UT ..	OFF 7	
Programme 4: CONFIRM		UT ..		Btn 3

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9.6. SAFETY DEVICES

The boiler is fitted with the following safety devices:

- **PRESSURE SWITCH**
  Checks the pressure in the smoke duct. It shuts down the pellet loader auger if the outlet is obstructed or in the event of significant back-pressures (wind).
- **SMOKE TEMPERATURE SENSOR**
  It detects the temperature of the smoke, permitting start-up or shutting down the boiler when the temperature of the smoke drops below the default value.
- **CONTACT THERMOSTAT IN THE FUEL TANK (KLIXON)**
  If the temperature exceeds the safety value set, it immediately stops boiler operation
- **CONTACT THERMOSTAT IN THE BOILER**
  If the temperature exceeds the safety value set, it immediately stops boiler operation
- **WATER TEMPERATURE SENSOR**
  If the water temperature approaches the shutdown temperature (85 °C), the sensor forces the boiler to perform a series of cooling cycles or to shut down automatically in "ECO-STOP" to prevent the shutdown of the aforementioned bulb temperature sensor.
- **ELECTRICAL SAFETY**
  The boiler is protected against violent current surcharges by a general fuse situated in the control panel at the rear of the boiler. Other fuses to protect the electronic boards (motherboards and exchanger board) are situated on the latter.
- **SMOKE BLOWER**
  If the blower fan stops, the electronic board promptly suspends the supply of pellets and the alarm message is displayed.
- **GEARED MOTOR**
  If the geared motor stops, the boiler continues to operate until the flame dies out due to lack of fuel and until the minimum cooling level is attained.
- **BRIEF POWER FAILURE**
  After a brief power failure, the boiler automatically switches to cooling mode.
- **FAILED START-UP**
  If a flame fails to ignite during the start-up phase, the boiler alarm is triggered.
- **ANTIFREEZE FUNCTION**
  If the sensor inside the boiler detects a water temperature of less than 5 °C, the circulation pump is automatically started to prevent the system from freezing.
- **ANTI PUMP SHUTDOWN FUNCTION**
  If the pump is left unused for an extended period of time, it is started at regular intervals for 10 seconds, to prevent it from shutting down.

THE SAFETY DEVICES MUST UNDER NO CIRCUMSTANCES BE TAMPERED WITH

The boiler can only be started up after the cause that triggered the safety system has been identified, thereby restoring the functioning. To troubleshoot the fault, please consult this manual, which illustrates - depending on the error message - what to do to the boiler and how to remedy the fault.

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Caution!

If the boiler is NOT used as instructed herein, the manufacturer will not be held in any way liable for any ensuing personal harm and/or property damage. In addition, the manufacturer will not be held in any way liable for personal harm and/or property damage due to failure to observe all the rules specified in the manual, and also if:

- **all the necessary measures and/ or precautions have not been taken when carrying out maintenance, cleaning and repair work.**
- **The safety devices have been tampered with or removed.**
- **The boiler is not connected to an efficient and effective smoke outlet system.**
- **The room i.n which the boiler is installed is not suitably aired**
- **The hydraulic system has not been laid in compliance with the provisions of the applicable laws and standards in the country of installation.**

9.6.1. Alarm signals

In the event of an operating fault, the boiler is fitted with a computerised monitoring system and therefore informs the user on the display **(8)** how serious the fault is and where it has occurred.

The following table summarises the main alarm signals

Indication on the display (8)	Type of problem	Solution
ALAR DEP FAIL	Smoke outlet pipe obstructed or back-pressure caused by wind outside.	Check and clean the ENTIRE smoke duct or check whether the outside wind prevents the smoke from exiting (insert a windproof chimney). Only once the cause of the shutdown has been permanently remedied can the boiler be restarted.
ALAR FAN FAIL	Fan speed too low or fan off The smoke blower fan has shut down.	Check how clean it is and whether dirt is slowing down the fan. If the problem is not solved through a thorough clean, replace the blower fan
ALAR SOND FUMI	The smoke sensor has short-circuited	Replace the smoke sensor
ALAR SIC FAIL	The pellet tank safety device has been triggered. Malfunctioning has caused overheating. The pressure inside the boiler is not within the parameter values set	Check the parameters of the recipe used The exchanger isn't working. The boiler was used at maximum performance for too long. Check the correct pressure with a pressure gauge.
ALAR HOT TEMP	This occurs when the temperature of the smoke reaches and remains above 180° for too long.	Clean the inside of the exchanger and operate the boiler at maximum performance for shorter periods of time. Also check the quantity of pellets.
ALAR NO ACC	This occurs at the first failed start-up attempt.	If it was the first start-up, repeat the process or check the level of pellets in the tank. Check the pellet igniter.
ALAR NO FIRE	It occurs when the boiler shuts down and when the smoke sensor temperature is below the set threshold.	It is due to the flame dying out due to clogging or when the pellets in the tank have run out.

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9.6.2. Other display indications

The following table lists the messages which the display panel may show

WORDING DISPLAYED	MEANING
Off	The boiler is switched off
fan acc	Initial start-up sequence
load wood	Pellet loading
fire on	Start-up sequence and flame adjustment/stabilisation
Eco Stop	The boiler is automatically switched off when the temperature is reached
20 °C	Example of room temperature
62 °C	Example of water temperature
UT 01, UT02,...	User parameters to programme time, time brackets, etc...
day1,,,7	Days of the week
Set	Boiler operating mode setting (e.g. SET MAN = Boiler set to manual)
Alar fan fail	The smoke blower fan is malfunctioning
stop fire	Automatic brazier cleaning in the time interval set
red	red
cool fire	The boiler is in cooling mode
alar dep fail	The pressure switch was triggered and indicates a difficulty in evacuating smoke
alarm sond fumi	The smoke sensor is malfunctioning
alar no acc	There was a start-up failure.
alar no fire	There is no fire in the boiler
alar fail sic	Thermal cut-out alarm. Excess heat in the structure

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10. MAINTENANCE AND CLEANING

Inspection and maintenance, carried out to the highest standard at regular intervals and using only genuine parts, are of primary importance for fault-free operation and long life cycle of the boiler.

Boiler maintenance is compulsory pursuant to the applicable Laws in force and it must be performed with the frequency set out in Italian Presidential Decree 412 of 26th August 1993 and subsequent amendments regarding the type of fuel used and the boiler output.

Failure to perform Inspections and Maintenance may cause material damage and personal injury.

For this reason, you are advised to take out an inspection and maintenance contract.

Inspection is necessary to determine the current condition of an appliance and to compare it with the nominal condition. This is carried out through measurements, checks and observations.

Maintenance is necessary to eliminate any inconsistencies between the actual condition of the appliance and the nominal condition. This is carried out through standard cleaning as well as configuring and (if necessary) replacing individual components subject to wear.

These maintenance intervals and their importance are determined by the specialist, based on the condition of the appliance ascertained during inspection.

10.1. Instructions for inspection and maintenance

To ensure the long-term operation of your appliance and avoid deteriorating its performance, only original RED spare parts must be used.

Before carrying out maintenance operations, always perform the following operations:

- Switch the boiler off
- Disconnect the main switch.
- After the boiler has been switched off, wait for it to cool down properly.
  You need to wait for the temperature of the water circulating in the boiler drops and for the surfaces of the heat exchanger to have cooled down to safe levels. At this stage, the ash removal procedure can begin.

Once all the maintenance work has been completed, always perform the following operations:

- Reconnect the appliance to the electricity mains and switch on the main switch.
- Check that the appliance is perfectly sealed both on the smoke and water fronts.

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10.2. Boiler maintenance

Danger!

Before servicing the boiler, make sure both the boiler itself and its components have cooled down.

Warnings

Never drain the water from the system, even partially, except if you really have to.

Check regularly the correct functioning and the condition of the smoke outlet duct and/or device.

In the case of work or maintenance on structures placed near the smoke ducts and/or smoke outlet devices and their accessories, switch off the appliance and, when the work is complete, check its efficiency.

Do not clean the boiler and/or its parts with easily flammable products (such as petrol, alcohol, etc.).

Do not leave flammable containers in the room where the boiler is installed.

Do not clean the thermal power plant when the boiler is in operation.

At the end of every heating period, inspect the boiler in order to ensure the system is perfectly efficient.

Accurate maintenance always makes for savings and increased safety.

Important!

Use pigging equipment and aspirators for cleaning; if you use cloths, make sure you retrieve them all.

10.3. Recommendations and obligations

Caution!

- After every cleaning process, the boiler needs to be checked in terms of the correct positioning of its components, the seal of the covers and the boiler functioning.
- At the end of the heating season, you need to remove any ash in the boiler thoroughly, since mineral ash acts like a corrosive reagent and reduces the reliability of the boiler. We recommend you remove all the pellets (or other fuel, where used) from the fuel hopper since the pellets may absorb humidity from the ambient air and clog the fuel conveyor auger, cause start-up failures, etc.

The ash removal procedure described above is **COMPUSLORY. Failure to perform it will invalidate the guarantee**. If the boiler maintenance and ash removal procedures are not performed, the efficiency and reliability of the boiler performance could be compromised, and lead to operating faults (for instance, clogging up the ash removal mechanism, obstructing the outlet gas blower, etc.).

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10.4. DAILY OR WEEKLY CLEANING UNDER THE USER'S RESPONSIBILITY

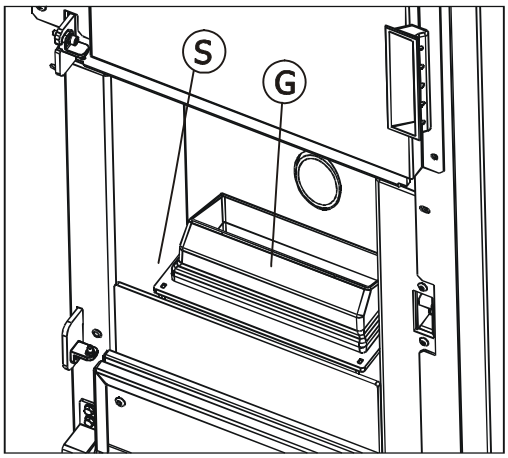
10.4.1. Before every start-up

Clean the brazier **"G"** using the purpose-provided tool, removing all ash and incrustation that may obstruct the air passageways.

If the pellets in the tank have run out, unburned pellets may build up in the brazier. Always empty the brazier of all residue before start-up.

REMEMBER THAT ONLY A BRAZIER THAT IS CORRECTLY IN PLACE AND THOROUGHLY CLEAN CAN GUARANTEE THE OPTIMAL STARTUP AND OPERATION OF YOUR PELLET BOILER.

To clean the brazier properly, remove it fully from its seat and clean all holes and the grate at the bottom thoroughly. If good quality pellets are being used, using a brush is normally enough to return the components to top performance, but in the event of tough incrustation, use the steel tool supplied as standard with the boiler.



Cleaning the ash collection compartment

10.4.2. Check every 2 / 3 days

Clean the compartment "**S**" around the brazier **"G"** removing any ash; beware of hot ash.

You may use a vacuum cleaner to remove the ash, only if it is completely cold. If this is the case, use a vacuum cleaner designed to suction a certain size of particles such as "high-power canisters". Rely on your experience and on the quality of the pellets to determine how frequently cleaning is required.

It is nonetheless advisable not to exceed 2 or 3 days.

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10.4.3. Cleaning the exchanger and the compartment underneath the brazier every 2/3 days

Cleaning the exchanger and the compartment under the brazier is a simple yet very important operation to ensure the performance declared at all times.

Every two or three days, we therefore recommend you clean the internal heat exchanger, following these few simple steps in order:

- Lift the cover
- **Enable the** "**CLEANING**" function – with the boiler switched off, press the control panel button **4** shown in figure 7 for 2 seconds. This procedure starts the smoke blower on the maximum setting to expel the soot that becomes dislodged when the exchanger is cleaned.
- **Clean the pipe unit** – Using the "hands cool" implement provided, shake the rods situated under the cover vigorously 5-6 times. This will remove any soot that has deposited on the exchanger's smoke ducts during normal boiler operation.
- **Disable the "CLEANING" function -** this function is automatically disabled after two minutes. If you need to interrupt this function earlier, press button **5** shown in figure 7.
- **Clean the smoke conveyor compartment (fig.9) -** The boiler is fitted with a removable ash tray designed to collect any soot and ash build-up. When you have finished cleaning, close the cover.

If this cleaning process is not performed every 2-3 days, the boiler may trigger an alarm due to ash build-up after several hours of operation.

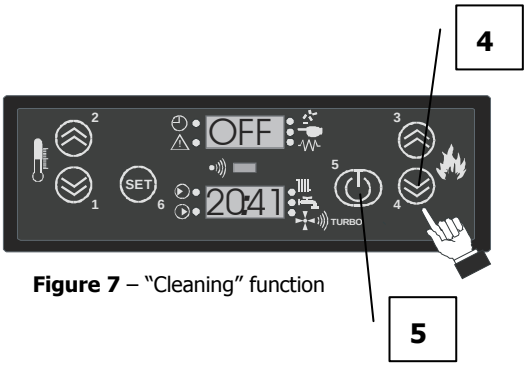

Figure 7 – "Cleaning" function

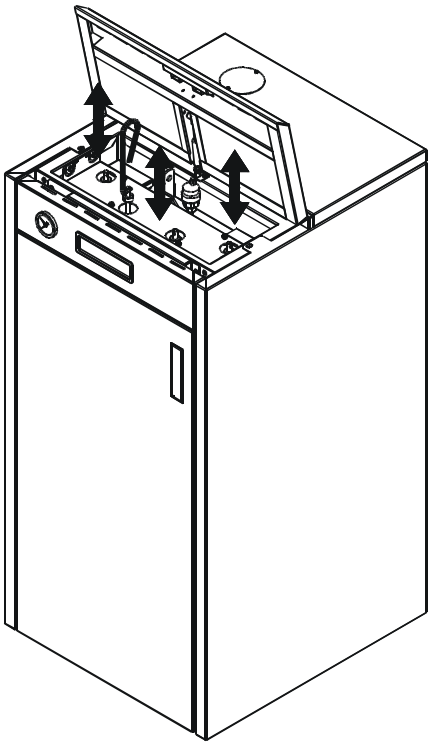

Figure 8 – Cleaning the internal pipe unit using scrapers

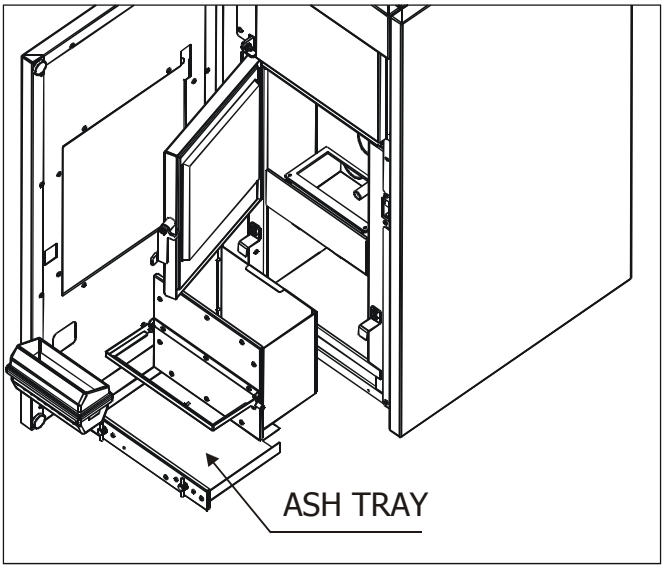

Figure 9 - Cleaning the lower ash tray

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10.5. ROUTINE CLEANING UNDER THE SPECIALISED TECHNICIAN'S RESPONSIBILITY

10.5.1. CLEANING THE EXCHANGER AND PIPE UNIT

CLEANING THE UPPER COMPARTMENT

When the boiler is cold, raise the front cover **"H"**; remove the screws to the left and right **"o"** and remove the cover **"A"**. Next, remove the relevant fastening screws from the drivers **"v"** and remove the boiler cover **"B".**

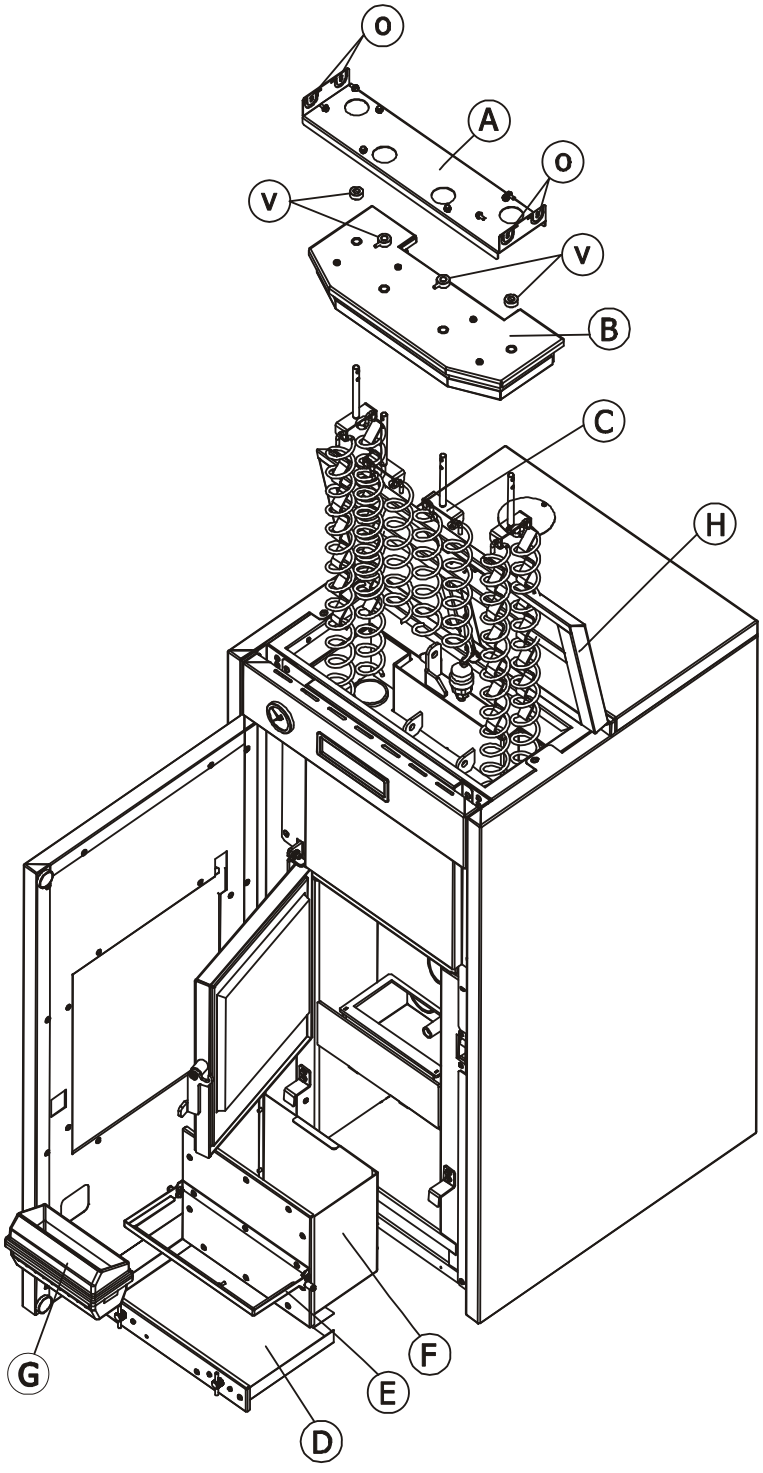

Figure 10 – Cleaning the pipe unit, turbulators and lower compartment

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At this stage, remove the four turbulators **"C"** and using a rigid rod or a bottle brush, clean the internal pipe unit and the turbulators, removing all the ash build-up.

Check the cover gasket and replace it if necessary

CAUTION: It is advisable to carry out the cleaning of the upper exchanger at the end of the season and possibly by an authorised technician in order to replace the gasket that is situated beneath plug **"B".**

CLEANING THE LOWER COMPARTMENT

Remove the ash tray **"D"** and empty it as mentioned in para. 5.3.4.

Lower the lever "E" and remove the tray "F". Remove all ash from this tray too, and if necessary suction with a vacuum cleaner to remove any ash and soot build-up under the tray. Also remove the grate **"G"** and clean it every 2/3 days as explained in chapter 5.1.

Check the condition of the ceramic fibre seal on the plug and replace it if necessary.

Check the condition of the door seal and replace it if necessary.

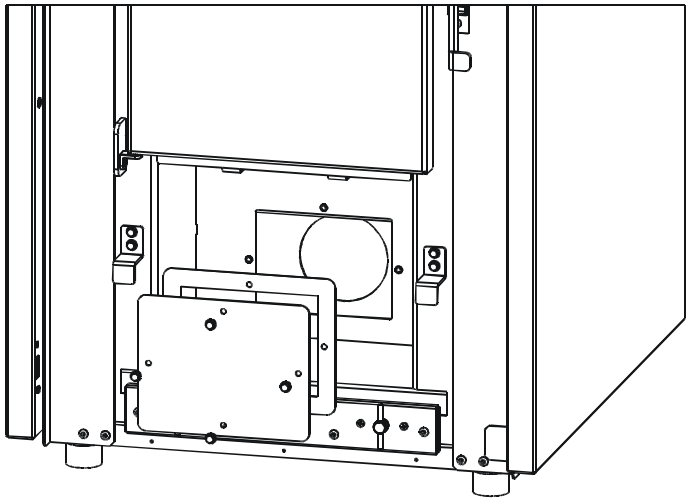
At the end of the season, clean the compartment underneath the brazier and the exchanger inside it.

This general clean should be performed at the end of the season in order to facilitate the general removal of all combustion residue without waiting too long because the weather and humidity may compact it.

CLEANING THE SMOKE BLOWER FAN COMPARTMENT

Remove the four screws securing the plug in place, at the rear of the boiler, and using a vacuum cleaner, remove any ash build-up on the smoke blower fan.

Check the condition of the ceramic fibre seal on the plug and replace it if necessary.



CLEANING THE SMOKE DUCT AND GENERAL CHECKS:

Clean the exhaust smoke outlet system, especially near any T-unions, elbows and any horizontal sections.

For information about cleaning the flue pipe, contact a chimney sweep.

Check the condition of the ceramic fibre seals on the boiler door. If necessary, order new seals from your retailer for replacement or contact an authorised service centre to have this done.

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CAUTION:

The frequency with which the exhaust smoke outlet system is to be cleaned should be determined according to the boiler use and the type of installation.

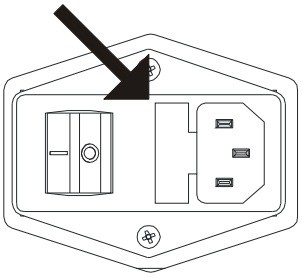
It is advisable that you contact an authorised service centre for maintenance and cleaning at the end of the season because in addition to performing the above-mentioned operations, a general check of the components will also be performed.

10.5.2. Decommissioning (end of season)

At the end of every season, before switching off the boiler, it is advisable to remove all pellets from the tank, using a vacuum cleaner with a long pipe.

If, when restarting it at the general switch at the rear of the boiler, the control panel display is not turned on, this means the service fuse may need replacing.

There is a fuse box at the rear of the boiler, beneath the electricity socket. Using a screwdriver, open the cover on the fuse box and replace the fuses if necessary (3.15 A delayed).



10.5.3. Checking the internal components

CAUTION!

The internal electrical-mechanical components must only be checked by qualified personnel with technical expertise in combustion and electricity.

It is therefore advisable to perform this routine annual maintenance (perhaps with a scheduled service contract) focusing on the visual and functional check of the following components:

- Geared motor
- Smoke blower fan
- Smoke sensor
- Exchanger fan
- Pellet igniter
- Pellet/water manual reset thermostat
- Room/water sensor
- Mother board
- Panel-board protection fuses
- Wiring

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Below is a summary of the indispensible checks and/or servicing tasks for the boiler to function correctly.

Parts / period	Every day	Every 2-3 days	Every 30 days	Every 60-90 days	Every year
Brazier	●				
Ash tray		●			
Lower compartment			●		
Complete exchanger				●	
Smoke duct			●		
Internal parts					●
Flue pipe					●
Circulation pump					●
A plate heat exchanger					●
Hydraulic components					●
Electrical-mechanical components					●

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11. FAULTS / CAUSES / SOLUTIONS

CAUTION:

GUIDE FOR THE EXCLUSIVE USE OF SPECIALISED TECHNICIANS.

CAUTION:

All repairs must be performed solely by a specialised technician with the boiler switched off and the appliance unplugged from the socket.

The operations marked in bold must only be performed by specialised personnel.

The manufacturer will not be held liable and the guarantee will not be valid if this condition is not abided by.

FAULT	POSSIBLE CAUSES	REMEDIES
Pellets are not being introduced into the combustion chamber.	1. The pellet tank is empty. 2. The auger has seized up 3. The auger geared motor is faulty. 4. Faulty circuit board.	1. Fill the tank with pellets. 2. Empty the tank and free the auger. *3. Replace the geared motor.* *4. Replace the circuit board.*
The fire goes out or the boiler stops automatically.	1. The pellet tank is empty. 2. The pellets are not being introduced. 3. The pellet temperature safety sensor was triggered. 4. The door is not closed properly or the seals are worn. 5. Unsuitable pellets. 6. Low pellet feed rate. 7. Combustion chamber dirty. 8. Outlet obstructed. 9. Pressure switch faulty or broken. 10. Smoke extraction motor failure.	1. Fill the tank with pellets. 2. See previous fault. 3. Allow the boiler to cool down completely then restart it; if the problem persists, call for technical assistance. 4. Close the door or have *the seals replaced with original spares.* 5. Change to a type of pellet recommended by the manufacturer. 6. Check the recipe and calibration. 7. Clean the combustion chamber according to the instructions in the manual. 8. Clean the smoke duct. *9. Replace the pressure switch.* *10. Check the motor and replace it if necessary.*
The boiler operates for a few minutes and then shuts down.	1. Start-up phase not completed. 2. Temporary power failure. 3. Smoke duct obstructed. 4. Faulty or broken temperature sensors. 5. Igniter failure.	1. Repeat the start-up phase. 2. See previous instructions. 3. Clean the smoke duct. *4. Check and replace sensors if necessary.* *5. Check and replace igniter if necessary.*

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FAULT	POSSIBLE CAUSES	REMEDIES
Pellets build up in the brazier, and the flame is weak,	1. Insufficient combustion air.	1. Clean the brazier and check that all airways are clear. Perform a general clean of the combustion chamber and smoke duct. Make sure the air inlet is not obstructed.
	2. Damp or unsuitable pellets.	2. Change the type of pellet.
	3. Smoke extractor motor broken.	*3. Check the motor and replace it if necessary.*
The smoke extraction motor does not work	1. No electricity supply to the boiler.	1. Check the supply voltage and the protection fuse.
	2. The motor is broken.	*2. Check the motor and capacitor and replace if necessary.*
	3. The mother board is faulty.	*3. Replace the circuit board.*
	4. The control panel is broken.	*4. Replace the control panel.*
In automatic mode, the boiler always runs at full power.	1. Thermostat set to minimum	1. Reset the thermostat temperature.
	2. Room thermostat in position that always detects cold.	2. Change the position of the sensor
	3. Temperature detector sensor faulty.	*3. Check the sensor and replace it if necessary.*
	4. Control panel faulty or broken.	4. *Check the panel and replace it if necessary.*
The boiler won't start	1. Power failure.	1. Make sure the appliance is plugged in and that the main switch is set to "I".
	2. Pellet sensor has seized up.	2. Release it by resetting the rear thermostat; if it happens again, *replace the thermostat.*
	3. Fuse blown.	3. Replace the fuse.
	4. Pressure switch broken (shutdown indicated).	4. Replace the pressure switch.
	5. Smoke outlet or duct clogged.	5. Clean the smoke outlet and/or the smoke duct.

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FAULTS LINKED TO THE HYDRAULIC SYSTEM

FAULT	POSSIBLE CAUSES	REMEDIES
No increase in temperature with boiler in operation	1. Incorrect combustion adjustment. 2. Boiler / system dirty. 3. Insufficient boiler power. Poor quality pellets	1. Check recipe and parameters. 2. Check and clean the boiler. 3. Make sure the boiler is correctly sized for the system requirements. 4. Use quality pellets
Condensation in boiler	1. Incorrect temperature adjustment. 2. Inadequate fuel consumption.	*1. Adjust the boiler to a higher temperature.* *2. Check the recipe and/or technical parameters.*
Radiators cold in winter	1. Room thermostat (local or remote) set too low. If remote thermostat, check if it is faulty. 2. Circulation pump does not run because it has seized up. 3. Circulation pump does not run. 4. Radiators have air in them	*1. Set to a higher temperature or replace if necessary. (if remote)* *2. Release the circulation pump by removing the plug and turning the shaft with a screwdriver.* *3. Check the electrical connections of the circulation pump and replace if necessary.* *4. Vent the radiators*

CAUTION!

The operations *in italics* **must be performed solely by specialised personnel.**

The manufacturer will not be held liable and the guarantee will not be valid if this condition is not abided by.

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